



STATE OF ALASKA
DEPARTMENT OF
COMMERCE
COMMUNITY AND
ECONOMIC DEVELOPMENT

Mike Dunleavy, Governor
Julie Anderson, Commissioner
Robert M. Pickett, Chairman

Regulatory Commission of Alaska

December 23, 2020

In reply refer to: Tariff Section
Files: U-18-102, U-19-020, U-19-021

Lee Thibert
Chief Executive Officer
Chugach Electric Association, Inc.
P.O. Box 196300
Anchorage, AK 99519-6300

Dear Mr. Thibert:

Pursuant to Order No. U-18-102(51)/U-19-020(46)/U-19-021(46), enclosed are validated copies of Tariff Sheet Nos. 1 through 51, 53 through 75, 77 through 121, and Appendix A filed November 4, 2020, and Tariff Sheet Nos. 52 and 76, filed November 30, 2020, by Chugach Electric Association, Inc. in Docket Nos. U-18-102, U-19-020, and U-19-021. The effective date of the tariff sheets is December 23, 2020.

Please note that "Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)" has been added to the bottom left corner of each tariff sheet. In addition, the effective date has been added to the bottom right corner of each tariff sheet.

Sincerely,

REGULATORY COMMISSION OF ALASKA

Becki Alvey

[Becki Alvey \(Dec 23, 2020 15:19 AKST\)](#)

Becki Alvey
Tariff Section Manager

Enclosures

cc: Arthur Miller
Executive Vice President, Regulatory and External Affairs
Chugach Electric Association, Inc.
P.O. Box 196300
Anchorage, AK 99519-6300

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Title Page

CHUGACH ELECTRIC ASSOCIATION, INC.
ELECTRIC UTILITY
TARIFF

Tariff No.: 2
Nature of Services: Electric Utility
Area Served: Area authorized by Certificate No. 121

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

Issued by:

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MAPS

Chugach's certificated service area is delineated on the map located on Tariff Sheet No. 8.

The Chugach service area description contained in the sixth Revision of Certificate of Public Convenience and Necessity, No.121 is as follows:

DESCRIPTION OF SERVICE AREA:

T13N	R4W	Sections:	13, that portion of 23 generally east of the centerline of the Alaska right of way, and 24
T13N	R3W	Sections:	Those portions of 6 through 10, and 12 not included within the boundaries of a military reservation; 15 through 22, and 27 through 30
T13N	R2W	Sections:	That portion of 7 not included within the boundaries of a military reservation

(All the above with reference to the Seward Meridian)

In addition, the following customer locations are being served within the Elmendorf Air Force Base and Fort Richardson areas:

1. Municipality of Anchorage d/b/a Anchorage Water & Wastewater Utility Ship Creek Dam Waterline, from the Ship Creek Filtration Plant to the Ship Creek Dam
2. 716 Steel Road, State of Alaska Elmendorf Fish Hatchery
3. 2800 Post Road, Elmendorf Air Force Base Guard House
4. 3000 Post Road, Elmendorf Air Force Base Golf Course, SE of EAFB Post Road Gate, Elmendorf Air Force Base Golf Cart Storage Facility
5. 2651 Post Road, State of Alaska d/b/a Alaska Railroad Load Center, 3301 Post Road, State of Alaska d/b/a Alaska Railroad Signal Light
6. 4005 McPhee Avenue, Anchorage School District Mountain View Elementary School

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7. 5400 Davis Way, Federal Aviation Administration Air Traffic Control Facility
5400 Davis Way, Federal Aviation Administration Modular Office Buildings
8. East side of Robert Rude Subdivision, AWWU Control Valve Station
9. 525 East Bluff Drive, Anchorage School District Government Hill Elementary School
10. 911-1509 Richardson Vista Drive and 1303-1347 East Bluff Drive, Richardson Vista Apartments (19 building complex)
11. Fort Richardson Bulk Power Sales
12. Elmendorf Air Force Base Bulk Power Sales
13. 9100 Centennial Drive, Cook Inlet Housing Authority Water Pump
14. 8701 Glenn Highway, State of Alaska Glenn Highway Lighting
15. Elmendorf Hospital Central Plant
16. State of Alaska Fort Richardson Fish Hatchery
17. Veterans Affairs Clinic, EAFB

The locations listed above are numbered to correspond with the numbered locations shown on the service area Map on file with the Regulatory Commission of Alaska and on Tariff Sheet No. 8.

CHRONOLOGY:

Conditional Temporary Certificate:	12/31/70 (U-70-63 (1))
Original Certificate granted:	07/28/72 (U-70-063 (3)), 08/03/72 (U-70-063 (3E))
First Revision	09/27/73 (U-71-016 (19))
Second Revision	01/07/80 (U-71-016 (22))
Third Revision	08/27/84 (U-71-016 (37))
Fourth Revision	07/18/91 (U-90-006 (2))
Fifth Revision	10/31/91 (U-90-006 (2))
Sixth Revision	12/01/97 (U-97-104 (1))
Seventh Revision	05/21/01 (U-00-79 (7))
Eighth Revision	05/13/08 (U-07-160(2))

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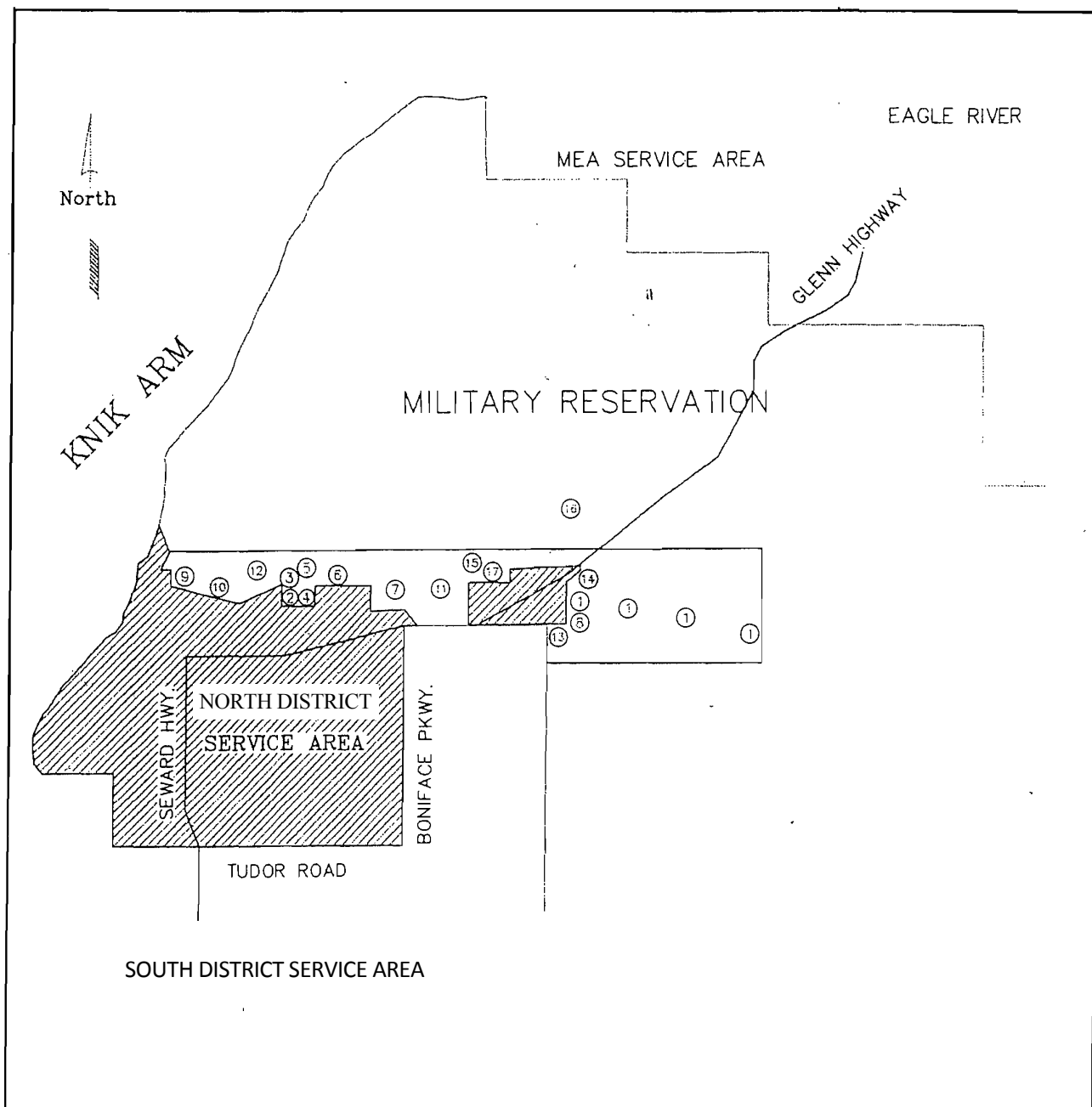
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1. SCOPE OF RULES AND REGULATIONS

1.1 Adoption.

These rules and regulations were adopted for use by the City of Anchorage, d/b/a Municipal Light & Power Department, by Resolution No. 17R74 enacted by the City Council of the City of Anchorage, to be effective on the 9th day of April, 1974.

Copies of these rules and regulations, together with rate schedules and pertinent business and contract forms, are available at Chugach Electric Association, Inc. (Chugach) offices at 5601 Electron Drive, Anchorage, Alaska 99518 and at www.chugachelectric.com.

1.2 Applicability.

These rules and regulations apply to all service rendered or facilities constructed or installed by Chugach unless specifically provided otherwise in a special contract approved by the Regulatory Commission of Alaska (RCA).

1.3 Compliances with Federal and State Law.

The Chugach electrical generation and distribution system will be operated in accordance with applicable federal and state law and in compliance with rules and regulations promulgated by other

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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authorities having jurisdiction over the operations of Chugach.

1.4 Waiver or Modification of Regulations.

These rules and regulations may not be waived by an officer, agent or employee of Chugach. Nor may they be modified, amended or changed in any way without first being submitted to, and approved by, the Regulatory Commission of Alaska.

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2. NATURE AND TYPES OF SERVICES OFFERED**2.1 Electric Service.**

Chugach provides sixty-hertz alternating current, either single or three phase, at available standard voltages. Voltage, frequency and wave form are regulated to conform to the standard practices of the electric utility industry. Chugach will construct, operate and maintain the facilities necessary to deliver electrical energy to the delivery point unless otherwise provided in this tariff.

2.2 Permanent Service.

When the nature of the customer's facilities provides Chugach with reasonable assurance that the premises will take electric service permanently and continuously and where unusually large expenditures will not be required of Chugach to serve the premises in relation to anticipated revenues, Chugach will provide the facilities necessary to serve the customer at its expense.

When reasonable assurance does not exist that the customer to be served will be permanent or where unusual expenditures are necessary to supply service because of the location, size or character of the applicant's installation, facilities will be constructed only if the applicant makes an adequate contribution

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toward the cost of the facilities, guarantees continued payment of bills for electric service or makes other satisfactory arrangements that will provide Chugach with sufficient security to warrant the investment and expense involved.

2.3 Temporary Services.

Temporary service will be provided by Chugach if the applicant makes a payment sufficient to cover the cost of the installation and removal of the necessary facilities less the salvage value of materials returned to stock. The cost of installation and removal will include material, labor, equipment, payroll cost and overhead. These charges will be in addition to any required meter deposit and the energy and demand charges accumulated through the use of electric energy as determined pursuant to the applicable rate schedule.

Following receipt of an application for temporary service, Chugach will prepare an estimate of the applicable installation and removal costs. Prior to the commencement of installation the applicant shall submit an advance payment equal to the estimated cost and shall agree to pay the difference between the actual costs, as ascertained after removal of the temporary service, and the estimated cost. If actual cost is less than the estimate, Chugach will refund the excess to the customer.

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3. EXTENSION OF SERVICE**3.1 Feasibility.**

Chugach will construct the facilities necessary to extend service to any customer within its certificated service area if the extension of service is economically feasible. An overhead line extension will be considered economically feasible if the cost of the extension does not exceed five times the estimated gross annual income that will be derived from the sale of electricity delivered over the extension. An underground line extension will be considered economically feasible if the customer agrees to reimburse Chugach for the cost of necessary conduit, vaults, clearing, trenching and backfill for the extension and the remaining cost to Chugach does not exceed five times the gross annual income estimated by the Utility to be derived from the sale of electricity delivered over the extension.

3.2 Extensions in Subdivisions.

Line extensions into an area that is being subdivided for residential construction which contemplates the installation of an integrated electrical system to serve an entire subdivision, or a portion of a subdivision being developed in stages, will be constructed only pursuant to a written agreement between the developer and Chugach. Copies of the forms of agreement utilized by Chugach are filed with this tariff.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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3.3 Contribution for Low- Income Extensions.

If Chugach determines that the cost of the line extension to be borne by Chugach, other than extensions involving the total system within a new subdivision, will exceed five times the estimated gross annual revenue, Chugach will make the extension if the customer executes a written contract guaranteeing that the gross income derived from the line extension over a five-year period of time will meet or exceed the cost to Chugach of the line extension. The contract shall provide for monthly payment by the customer of the charges and fees for services furnished over the line, or one-sixtieth (1/60) of the construction cost borne by Chugach, whichever is greater. If additional customers apply for service from the line extension, service will be provided to them only upon execution of an agreement to incur a minimum monthly billing based on an equal apportionment of the one-sixtieth (1/60) of the costs among the total number of customers receiving service from the extension. All the contracts so executed shall terminate on a date five (5) years after the first connection to service.

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4. **LIABILITY OF CHUGACH**

4.1 Irregularity or Failure of Service.

Chugach will exercise reasonable diligence to furnish and deliver a regular and continuous supply of electric energy to the customer but will not be liable for damages caused by interruptions, shortages, irregularities or failures due to accident or conditions beyond the control of Chugach.

4.2 Interruptions for Repairs or Modifications.

Chugach reserves the right to temporarily suspend the delivery of electric service when necessary for the purpose of making a repair, modification or improvement to the system. If not precluded by emergency conditions, Chugach will make a reasonable effort to give notice to the customer, either through the use of public media or individual communications. Repairs or improvements will be completed expeditiously and, insofar as it is feasible, the work will be performed at times that will cause the least inconvenience to the customer.

4.3 Customer's Equipment.

The customer's electrical equipment and facilities shall conform and be installed in compliance with this tariff and with applicable federal, state, borough and city statutes, ordinances

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and regulations. Chugach does not give an expressed or implied warranty as to the adequacy, safety or other characteristics of a structure, equipment, wire, conduit, appliance or device owned, installed or maintained by the customer or leased by the customer from third parties, by virtue of its inspection or non-rejection of the facilities or equipment. When inconsistencies exist between the installation standards established by the above referenced codes, the most stringent standards shall be applied.

4.4 Consequential Damages

Chugach disclaims liability for any injury, casualty or damage resulting from the supply or use of electricity or from the presence or operation of Chugach structures, equipment, wires, conduit, appliances or devices on the customer's premises, except injuries or damages resulting directly from the negligence of Chugach, its officers or employees.

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5. TECHNICAL PROVISIONS**5.1 Metering.**

The quantity of electrical energy and electrical demand shall be determined by the registration of the electric meters provided by Chugach unless otherwise provided for in rate schedules. When the service exceeds 200 amperes or 480 volts, Chugach will provide instrument transformers for metering. The customer shall install the instrument transformers in a sealable enclosure and shall furnish and install all necessary meter sockets and raceways. Chugach will install the wiring from the instrument transformers to the meter sockets in raceways provided by the customer.

5.2 Meter Testing.

Upon request by a customer, Chugach will test an electric meter if its accuracy is questioned. If the test results demonstrate that the meter varies from the standard tolerance, the test will be performed at the expense of the utility. If the meter does not vary from the standard tolerance, a charge will be made to the customer requesting the test in accordance with the Schedule of Fees and Charges. The meter test will be conducted during normal business hours in the presence of the customer or other representative appointed by him if requested by the customer.

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5.3 Protective Equipment.

The customer is responsible for providing suitable protective devices for the equipment on his premises. The customer shall protect equipment with special service requirements from potentially harmful conditions, including, but not limited to, single-phase operation of equipment requiring three-phase service or under-and-over voltage conditions.

5.4 Non-Standard Tolerances.

If a customer requires a degree of a regulation of the characteristics of the electrical service greater than that normally furnished by Chugach, the customer is responsible for obtaining, installing and maintaining the required regulating equipment.

5.5 Compliance with Codes.

Chugach may refuse to connect with or render service to an applicant if the applicant has not complied with pertinent national, state and local building and safety codes, regulations and ordinances relating to the installation and maintenance of his electrical wiring and equipment. Chugach may require a certificate of approval from the authority having jurisdiction to secure compliance with the building and safety codes, regulations and ordinances prior to connecting with or rendering service to the applicant.

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5.6 Major Increase in Load.

A customer planning an increase in or modification of his equipment or facilities that will increase his peak demand by 20% or more shall notify Chugach in writing of the proposed increase in service requirements. The written notice, which shall be delivered sufficiently in advance of the increase or modification to enable Chugach to make necessary changes in its facilities to accommodate the increased load, shall state the amount, character and the expected time period during which the increased service will be required. New facilities required to meet increased demand shall be constructed under the conditions applicable to service extensions.

5.7 Damage Produced by Increased Load.

A customer who increases his load and fails to provide Chugach with the written notice required by section 5.6 shall be liable for injury to any person and damage to equipment or facilities owned or operated by Chugach or other customers of Chugach, resulting from the load increase. Damages to Chugach facilities and equipment will be repaired by Chugach and charged to the customer.

5.8 Undesirable Load Characteristics.

Chugach may refuse or discontinue service to a customer

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installation if the installation has load characteristics that may cause excessive voltage fluctuations, loss of service or damage to the facilities of Chugach or other customers. Chugach may require, as a condition of service, that a customer install, at his own expense, equipment that will eliminate the undesirable load characteristics. Undesirable load characteristics include, but are not limited to, unbalanced load between phases, unacceptable variations from unity power factor and unusual demand fluctuations produced by the customer's equipment. A customer planning to install electric welders or motors larger than five (5) horsepower should consult Chugach before making the installation.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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6. SERVICE CONDITIONS**6.1 Application for Service.**

A person desiring electrical service from Chugach shall complete and sign a standard service application form at the Utility Customer Service office. If a person who has failed to complete an application or sign an agreement for service accepts service delivered by Chugach, he shall be obligated to pay for the service in accordance with the appropriate rate schedule and must abide by these rules and regulations. The furnishing of service by the utility may not be construed as a waiver of the requirement for completing and signing an application or satisfying other requirements established by these rules and regulations.

6.2 Service Contracts.

If Chugach is required to incur expenses to provide the service applied for by the customer that are excessive in relation to the anticipated revenues, the applicant may be required to execute a contract, as provided for in section 3.3, guaranteeing a specified minimum monthly or annual revenue for a designated period of time.

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6.3 Term of Service.

Unless otherwise specified in a written contract for service, the minimum term for which service will be rendered is thirty (30) days. A customer taking service for less than this minimum term will be billed for the minimum monthly charge specified under the applicable rate schedule.

6.4 Easements or Rights-of-Way Required.

Chugach will construct, own, operate and maintain electrical facilities only within the rights-of-way of public streets, roads or highways which it has a legal right to occupy or on public or private property across which easements or right-of-way satisfactory to Chugach may be obtained without cost or condemnation. As a condition of service, Chugach may require the execution of an easement or easements providing suitable right-of-way for the construction and maintenance of the distribution lines from which the consumers premise is served.

6.5 Access to Customer's Premises.

A properly identified employee of Chugach shall have access to its equipment and to any required electric interconnection equipment on the premises of the customer at all (8760 hours/year) times. Except as required for the safe and efficient operation of its facilities, Chugach will endeavor to avoid accessing the customers' premises at unusual or disruptive times.

If a customer fails to provide required access, the customer will be notified of the denial of access and will be given a reasonable time to remedy the access problem, consistent with the nature of the problem (e.g. safety hazard, emergency, non-emergency, etc.). Failure to remedy the access problem within the time specified may result in disconnection of service in accordance with section 6.11.2.

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6.6 Connection Charge.

Each customer shall be assessed a charge for initial connection to electrical service at each location which electrical facilities have been extended in compliance with this Tariff. This charge shall be due and payable within 15 days of the customer's initial connection. The customer will be charged for each additional connection or disconnection requested by the customer at an existing service location. If a customer's service is disconnected pursuant to Rules 5.5, 6.11 or 7.7 a reconnection charge shall be assessed. The customer shall be entitled to final disconnection from electrical service without charge at each service location.

6.7 Establishment of Credit.

Electrical service will not be provided by Chugach to a person or firm that is delinquent for service of the same classification (residential or business) previously rendered at the same or a different address, until arrangements have been made to liquidate the delinquent account.

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6.8 Deposits.

To insure the payment of all charges due for its services, an applicant or customer may be required to make a deposit when applying for service in an amount set forth in the Schedule of Fees and Charges. Chugach may require a separate deposit for each meter installed.

Chugach shall issue to an applicant a written receipt for the amount of the deposit and a description of Chugach's terms and conditions in the effective tariff for the refund of deposits. Chugach shall not require a customer to produce a deposit receipt in order to receive a refund of a deposit that is reflected on Chugach records.

Chugach shall offer a deferred payment agreement to residential customers for deposits in cases where economic hardship is demonstrated.

Chugach shall waive or refund a residential deposit within ninety (90) days if the applicant has previously established a good payment record with an electric utility by receiving comparable service for not less than twelve (12) consecutive months from that utility within the past two (2) years without delinquency in payment during the last twelve (12) consecutive months of service. If the service was provided by a utility other than Chugach, written verification will be required.

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Any deposit held, plus any accrued interest, shall be refunded within thirty (30) days after the earlier of:

- (1) Twelve (12) months continuous service if the customer has not been past due in payment more than two (2) times, has not been delinquent in payment in the last six (6) months, and is not past due at review; or
- (2) Termination of service or disconnection of service to the extent the amount of deposit exceeds any balance due Chugach for electric service, late fees, finance charges, and any claims for damage or destruction of Chugach owned property.

Chugach may require a customer, as a condition for continued service, to make a deposit or increase the amount of deposit at any time the customer becomes delinquent in payment or Chugach determines that the charges billed against the customer would warrant the increase. The amount of the total deposit shall not exceed that set forth in the Schedule of Fees and Charges.

6.8.1 Interest on Deposits.

Chugach shall pay interest on deposits over \$100.00 at the time of deposit refund. The deposit shall be placed in an interest-bearing account. At the time of deposit refund the interest paid shall be calculated using the current interest rate that Chugach earns on utility deposits. This rate shall be applied over the term that the deposit is retained by Chugach. If delinquent payments result in interruption of service, Chugach shall not pay interest on a deposit for the first 12 months after re-

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establishment of service. The customer's interest earnings and deposit refund may together be applied as credit on a customer's bill.

6.9 Deposit Not to Affect Regular Collection Practices.

A deposit remitted in compliance with the requirements of these rules and regulations does not relieve an applicant or customer from the obligation to pay bills promptly when due, nor does it constitute a waiver or modification of rules providing for discontinuance of service for nonpayment of any sum due Chugach for service rendered. Chugach may discontinue service to any customer failing to pay current bills, as provided in Rule 7.5, Delinquent Bills, without regard to the fact that the customer has made a deposit with Chugach to secure payment of those bills or has furnished Chugach with a guarantee in writing for the bills.

6.10 Protection of Chugach Property and Facilities.

Appliances, devices or facilities provided at the expense of Chugach are the property of Chugach and may be removed by it at any time on the termination of an agreement for its maintenance or the discontinuance of service. To protect its equipment and service Chugach may seal the switch or other device, equipment or facilities located on the customer's premises to prevent access by unauthorized persons.

The customer is responsible for the safekeeping of the property

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of Chugach on its premises and shall take all reasonable precautions against damage to or unlawful interference with the facilities. The customer shall not connect to, interfere with or alter the conductor, meters, seals or other facilities used in connection with rendering electric service or permit connection to, interference with, or alteration by any person other than an authorized agent or employee of Chugach. The customer shall pay for any damage to Chugach's property. If Chugach determines it to be necessary to protect its property or other individuals, the customer shall install, at his expense, suitable protective or security devices designated by Chugach on the customer's premises.

6.11.1 Disconnection of Service.

Service shall be discontinued only in accordance with the rules and regulations established in Rule 6.11.2, Notification Policy. The right to disconnect service for cause, as contained in this tariff, shall be exercised whenever and as often as the cause shall occur. Neither delay nor omission on the part of Chugach to enforce this rule at any time shall be deemed to waive its right to enforce this rule at another time.

Chugach may discontinue any or all electric services of the same classification (for example residential, general service, etc.) being provided to a customer, at the same or different locations, if a customer permits a bill to become delinquent.

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Service discontinued in accordance with the rules and regulations established in this tariff shall be restored within three (3) working days of correction of the cause of disconnection.

6.11.2 Notification Policy.

- A. By Request: If a customer either in person, in writing, or by telephone requests that service be disconnected, Chugach shall hold that customer responsible for all services up to the later of the date the disconnection is to be made or three working days after Chugach is notified of the request for disconnect.
- B. Without Notice: Service may be disconnected without advance written notice in the following situations:
- (1) An immediate hazard exists which threatens the safety or health of the customer or the general population or Chugach's personnel or facilities. For purposes of this subsection, connection to another electrical system, except as allowed in Section 6.12 of this tariff, constitutes an immediate hazard threatening the safety of Chugach's personnel;
 - (2) Chugach has evidence of meter tampering or fraud by the customer. Tampering with meters is prohibited by Chugach. Theft of service is a criminal offense under Alaska Law (AS 11.46.200). In addition to statutory penalties, the user will be responsible to pay all outstanding bills, connect fees, deposits and charges for electric service (see Section 6.11.5 Disconnection for Tampering with or Failure To Protect Property); or
 - (3) A customer has failed to comply with the curtailment procedures imposed by Chugach during emergency supply shortages.
- C. With Notice: Chugach may commence disconnection procedures in accordance with Section D., Notice Requirements, for any of the following reasons:

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- (1) Failure of the customer to pay for utility service within 40 days after initial rendering of the bill unless the customer has entered into a deferred payment agreement;
 - (2) Failure of the customer to fulfill the terms of a deferred payment agreement;
 - (3) Failure of the customer to meet or maintain Chugach's deposit requirement;
 - (4) Knowing and continued failure of the customer to provide reasonable access to Chugach's meter, equipment, or property;
 - (5) Necessity of Chugach to comply with an order or regulation of any governmental agency with proper jurisdiction, or
 - (6) Customer breach of a special contract between Chugach and customer for utility service.
- D. Notice Requirements: The following notice requirements apply to service disconnections permissible under section C., With Notice:
- (1) Chugach shall, at least fifteen (15) days before the scheduled date of disconnection, mail or deliver to the customer a written notice of Chugach's intent to disconnect service.
 - (2) A customer may specify that a third party be served with a copy of the delinquent notice in the event of imminent discontinuance of the customer's service. A copy of the termination notice shall be forwarded to any third party designated by the customer on the service application. The existence of a third party to be notified does not relieve the customer of the responsibilities contained within this

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tariff nor does it change the time of final notice and discontinuance of service.

- (3) In the case where service is to be disconnected for nonpayment, the notice shall advise the customer of the availability of utility representatives empowered to review the charges and rectify any errors to avoid the possibility of disconnect.
- (4) Not less than three working days prior to disconnection, Chugach shall attempt personal contact with the customer either by telephone or by visit of an authorized Chugach representative to the premises. If by telephone: Chugach shall attempt to make contact no less than three times at various periods in the day or make other reasonable attempts to contact the customer. If by visit to the premises: Chugach's authorized representative shall hand deliver a "Shut-Off Notice" to the customer or, if no personal contact is possible, leave the notice in a prominent place.
- (5) Within 10 days after the date specified on a "Shut-Off Notice", Chugach may, without further notice, disconnect service to a customer between the daily business hours of 8:00 a.m. on Monday to 5:00 p.m. on Thursday. Service may not be disconnected on a Friday or a day preceding a holiday.

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- (6) If Chugach has been informed that a residence is occupied by a person who is seriously ill, elderly, handicapped, or dependent on life support systems, Chugach shall, at least 30 days before the scheduled date of disconnection, mail or deliver to the customer a written notice of Chugach's intent to disconnect service. In any case in which Chugach is notified after issuance of a termination notice that a customer's residence is occupied by a person who is seriously ill, elderly, handicapped, or dependent on life support systems, Chugach shall extend the disconnection date by 15 days and notify the customer of the extension.
- (7) If a customer fails to comply with the terms of a deferred payment agreement, Chugach may disconnect service after providing written or telephone notice at least three (3) working days before disconnection.
- (8) Chugach may remove any or all of its property installed on a customer's premises upon disconnection of service.
- (9) Chugach shall restore service within three working days after correction of the conditions that resulted in the disconnection. Correction includes execution of a deferred payment agreement. If service is restored during a period other than regular working hours at the customer's request, Chugach shall impose an after-hours charge for reconnection, in accordance with the Schedule of Fees and Charges.

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6.11.3 Landlord/Tenant Notice.

If Chugach knows that a landlord/tenant relationship exists the following provisions apply in disconnection of service following situations:

- A. Where the tenant is the customer of Chugach: Chugach shall notify the landlord in writing at least fifteen (15) days before the scheduled date of the tenant's disconnection. The landlord will have the option of subscribing for the service provided at the tenant's premises when the tenant has not corrected the situation which has made the premises subject to disconnection.
- B. Where the landlord is the customer of Chugach: Chugach shall notify the tenant in writing at least fifteen (15) days before the scheduled date of the landlord's disconnection. The tenant will have the option of subscribing for the service provided at the landlord's premises when the landlord has not corrected the situation which has made the premises subject to disconnection.

Chugach shall not attempt to recover from a landlord amounts due Chugach from the tenant, or recover from a tenant amounts owed by the landlord, nor will payment of such amounts be a condition of extending service to the applicant. However, if the applicant has an outstanding balance to Chugach for service to that service address, payment of this balance and all associated late charges, delinquent payment fees, finance charges, and any



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claims for damage or destruction of Chugach owned property will be required before service will be extended to the applicant, whether a landlord or a tenant. Chugach shall require a deposit as set forth in the Schedule of Fees and Charges.

Chugach may disconnect service to the premises if the landlord or tenant, as the case may be, declines to subscribe for service or arrange for payment of the delinquency where applicable. Service shall be disconnected within fifteen (15) days of the mailing of the notification of the option of subscribing for service.

- C. For master metered premises where the landlord is the customer of Chugach: Chugach shall, at least fifteen (15) days before the scheduled date of disconnection of the landlord, give each tenant known by Chugach to be served through the master meter notice of the pending disconnection.

6.11.4 Limitations on Disconnections.

Chugach shall not disconnect service to a customer for any of the following reasons:

- (1) delinquency in payment for services rendered to a prior customer at the premises where service is being provided, except in the instance where the prior customer continues to reside on the premises;
- (2) failure of the customer to pay for services or equipment not regulated by the Regulatory Commission of Alaska;

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- (3) nonpayment of a bill related to another class of service at a different service location;
- (4) failure of the customer to pay disputed charges on the delinquent account, provided that the customer complies with Chugach's tariffed rules on customer bill disputes, and the dispute remains under investigation by Chugach or by the Regulatory Commission of Alaska; however, a customer shall pay any undisputed amount, and Chugach may proceed to disconnect service in accordance with this rule for failure to pay any undisputed amounts; or
- (5) the customer is unable to pay the full delinquent amount due, qualifies for a deferred payment agreement, and is in compliance with a signed, or is in the process of timely negotiating a deferred payment agreement.

6.11.5 Disconnection for Tampering with or Failure To Protect Property.

In accordance with Rule 6.11.2, Notification Policy, service may be discontinued by Chugach at any time to prevent fraudulent use or to protect Chugach's property. Theft of service is a criminal offense under Alaska Law (AS 11.46.200). If seals placed on Chugach equipment or facilities are damaged or removed, Chugach shall discontinue service to the customer until such time as satisfactory assurance has been provided that the equipment or facilities will be free from future tampering. In addition to statutory penalties, the user will be responsible to pay all outstanding bills, connect fees, deposit, and charges for electric service.

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6.12 Connections to other Systems**6.12.1 Connections to other Systems**

Chugach will deny service to or disconnect service to or disconnect its service from any premises or facility that is connected to another electrical system except:

- (1) stand-by power from the customer's own generating equipment;
- (2) net metered generation as provided under Rule 10 of this tariff;
- (3) partial requirements service under Rate Schedules 770 or 780;
- (4) service under Rate Schedules 28 or 29; or
- (5) as is otherwise provided by special contract.

A customer's stand-by electrical system must meet the following requirements and the requirements of Rule 6.12.2 through 6.12.7. The customer's stand-by electrical system shall be connected through a transfer switch that is approved by Chugach under section 6.12. For purposes of Section 6.12, a "stand-by electrical system" is an electrical system that is used to supply electricity to a customer premises when utility service is not available. The transfer switch must be of a design that will ensure that backfeed into Chugach's electrical system will be prevented. Chugach shall make the sole determination as to whether or not a stand-by electrical system installation meets Chugach's requirements and provides an appropriate level of protection against backfeed to its electrical system.

6.12.2 Manual Transfer Switches (Open Transition)

Manual transfer switches shall be of the double-throw, open-transition type. Key-type interlock systems employing key cylinders and locking bolts, and ratcheting or pivoting plates that externally connect two independent circuit breakers in a break-before-make scheme do not satisfy the requirements of subsection 6.12.1, 6.12.2, and 6.12.3, and will not be allowed.

6.12.3 Automatic Transfer Switches (Open Transition)

Automatic transfer switches shall be the open transition type except as provided in 6.12.5. Automatic transfer switches must provide for manual transfer of customer load. Automatic transfer switches shall have both mechanical and electrical interlocks to prevent parallel operation of the customer's stand-by electrical system with Chugach's electrical system.

6.12.4 Modifying or Overriding Transfer Switches (Open Transition)

Chugach will deny service to or disconnect its service from any premises or facility with a stand-by electrical system that is found to have any modifications to a transfer switch, unless such modifications have been approved in writing by Chugach.

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6.12.5 Parallel Operation (Closed Transition)

Stand-by electrical systems intended for parallel operation (closed transition) shall not be installed without prior written approval from Chugach. Subsequent to written approval by Chugach, and prior to the system being made operational, the customer shall schedule with Chugach a time for initial inspection and testing of the closed transition transfer switch and stand-by electrical system. Parallel operation shall be allowed only for maintenance and testing of stand-by electrical systems and must be scheduled with and approved in advance by Chugach.

6.12.6 Transfer Switch Approval

Transfer switches, both open transition and closed transition, for use with stand-by electrical systems shall be approved by Chugach prior to installation. Chugach shall require a one-line electrical diagram of the proposed installation showing the normal source (utility power), the alternate source (stand-by power), and an accurate depiction of the transfer switch employed. Chugach will also require the generator manufacturer's specific ratings and capacities for the unit proposed, the transfer switch manufacturer's specific ratings and capacities for the transfer switch proposed, and a detailed description of transfer switch operation. If the transfer switch is intended for parallel operation (closed transition type), the customer shall also provide specifications of all interconnecting equipment including, circuit protection (protective relays), instrumentation, measurement, and control equipment.

6.12.7 Prohibited Transfer Equipment

Meter socket adapter transfer devices are prohibited for use on Chugach's system.

6.13 Permits

Chugach may require the customer to obtain for Chugach any special permits or licenses required for access to install and maintain its service facilities and carry out its contract or service obligation with the customer. A special permit or license is one that Chugach would not acquire or hold in the normal course of its business.

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6.14 Establishment of Rates for Services.

At the time the customer applies for service, Chugach personnel shall advise the customer of the most economical class of service available and assist the customer in making an informed choice if alternate classes of service are available. If more than one rate schedule could be applied, the applicant shall designate in writing the schedule upon which the service and rate will be based. If a customer receiving service desires to change the designation of the rate schedule to another schedule applicable to the service being rendered, the customer shall notify Chugach in writing and the change in schedule shall be effective commencing with the period following the next regular meter reading. A customer shall not be allowed to make more than one change in designation of applicable rate schedule during any one-year period unless a new schedule is made effective or the customer's operating conditions have changed permanently in a manner that would warrant a change in the schedule.

Unless otherwise provided, the rates established by this tariff for each class of service are based upon a supply of service to one entire premises through a single delivery and metering point. Service furnished to the same customer at other points of consumption shall be separately metered and billed at the rate applicable to the consumption at each delivery point.

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6.15 Resale of Electricity.

A customer shall not sell any of the electric energy furnished by Chugach unless the customer holds a valid certificate of public convenience and necessity issued by the Regulatory Commission of Alaska for retail distribution of electric energy and the customer has executed a contract with Chugach, or is accepting service under a schedule, which specifically authorizes the resale of electricity. This rule does not prohibit a customer from sub-metering for purposes of apportioning costs among tenants, provided the service location meets the terms set forth in Rule 8.6 or 8.7.

6.16 Service Complaints.

A customer may file a complaint with Chugach concerning the adequacy of the electric service provided or the failure of Chugach to comply with the rules and regulations or Rate Schedules established by this tariff. A service complaint may be filed only by a customer, or an authorized representative, who is directly affected by the action or inaction that is the subject of the complaint.

A service complaint may be oral or written and directed to the attention of the Chief Executive Officer of Chugach at 5601 Electron Drive, Anchorage, Alaska, 99518. If the Chief Executive Officer of Chugach requests, the complaint shall be reduced to writing and signed by the customer or an authorized representative. It shall set forth the name, address, and telephone number of the

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complaining party; the nature of the complaint; supporting facts, including pertinent dates; and the remedy requested. Chugach shall investigate the complaint and respond to the customer in writing within ten (10) working days after receipt. Complaints that are not resolved by Chugach to the satisfaction of the customer may be presented to the Regulatory Commission of Alaska in compliance with their filed regulations. The RCA's mailing address and telephone number is 701 West 8th Avenue, Suite 300, Anchorage, Alaska, 99501; 276-6222. Chugach shall retain records of service complaints for at least two years.

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7. BILLING AND COLLECTION**7.1 Net Rates.**

Electric energy will be sold only at rates established in this tariff unless another rate is provided for in a special contract filed with, and approved by, the Regulatory Commission of Alaska.

7.2 Billing.

Customer meters will be read by Chugach at intervals approximating thirty (30) days. Normally, each meter will be read on or about the same date each month, and bills will be prepared based on these readings. The length of the actual billing period may vary due to workload, intervening weekends or holidays, or other circumstances. No adjustment will be made to billings to compensate for minor variations in meter reading periods.

7.3 Delivery of Bills.

Bills will be mailed to each customer on a monthly basis to the premises supplied with electricity or to another address specified in writing by the customer. Bills will be mailed at approximately the same time each month, and the failure to receive a billing will not relieve the customer of the obligation to pay for the service rendered. A customer who has not received a bill for a period of forty-five (45) days shall notify the Customer Service office of Chugach.

Customers may elect to receive electronic bill notifications in lieu of printed paper bills. Customers electing this option will be sent notification by e-mail on the same day on which paper bills are mailed. E-mail notifications will contain a link to the Customer Service Portal <https://myaccount.chugachelectric.com> where customers can log on and access their bill and payment options.

Customers electing electronic billing will not receive paper bills. Electronic bills will be deemed rendered on the day that the bill has been posted on the Customer Service Portal and the e-mail notification has been sent. Failure to receive an e-mail notification of billing will not relieve a customer of the obligation to pay for the service rendered. A customer who has not received an e-mail notification of billing for a period of forty-five (45) days shall notify the Customer Service office of Chugach.

Customers can enroll in electronic billing on the Customer Service Portal, or by telephoning (907) 563-7366 for assistance. Customers electing electronic billing will receive a onetime credit of five dollars (\$5.00) on the first bill following their electronic billing enrollment.

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7.4 Payment of Bills.

Utility bills for services rendered by Chugach will specify the date that the bill is due, which may not be less than twenty-five (25) days after billing date. A bill that is not paid in full on or before the due date is past due. If payment is not received by the next billing date, a late fee will be assessed as established in the Schedule of Fees and Charges. However, a late fee will be charged no earlier than twenty-five (25) days after the billing date. A late fee will be assessed one time only on a given past due amount and no late fee shall be assessed on past due late fees.

7.5 Delinquent Bills.

Chugach may discontinue any or all electric services being provided to a customer, at the same or different locations, if a customer permits a bill to become delinquent. Any bill not paid within forty (40) days of the billing date is considered delinquent. If litigation is commenced to collect a delinquent bill a sum equal to five (5%) of the outstanding balance will be added as a penalty, and the billing, less the penalty, shall accrue interest at the rate of eight percent (8%) per annum from the due date until payment.

7.6 Dishonored Checks.

If a check presented in payment of any charge established by this tariff is dishonored for any reason, the person presenting the check will be assessed an additional charge established in the Schedule of Fees and Charges except when a check is honored the first time it is redeposited. If more than one check presented by an individual is dishonored, that customer may be denied the privilege of paying for services by personal check, and may thereafter be required to pay in cash or by other means approved by Chugach.

7.7 Re-connection of Service.

If a customer has had service discontinued for non-payment of bills, Chugach may refuse to furnish service to the customer at the same or any other location until all charges due to Chugach, including applicable re-connection charges specified in the Schedule of Fees and Charges, have been paid and satisfactory assurance given to Chugach that future bills will be paid promptly.

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7.8 Combined Billing.

The rates set forth in the individual rate schedules are based upon the supply of service to one member through one meter on one premises and service measured through two or more meters on the same premises will not be combined for billing purposes except in the following instances:

1. When two or more service connections are necessary to provide service at the least expense to Chugach.
2. When two or more service connections are necessary to render proper and reliable service without undue interruption.

Upon request of an applicant, Chugach may install more than one meter, but in such instances the bill for service through each meter will be computed separately and billed in accordance with the applicable rate schedule.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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7.9 Estimated Billing.

If Chugach is unable to read a meter at the usual or scheduled time, due to locked premises, weather conditions, road conditions, presence of dangerous animals or other circumstances, Chugach will bill the customer based upon the estimated consumption and adjust the account in accordance with the next subsequent meter reading.

7.10 Adjustment of Bills for Meter Error.

If a meter test, conducted for any reason, reveals that the meter is more than two percent (2%) fast, Chugach will refund to the customer the overcharge based on the corrected meter readings for the period in which the meter was in use, not exceeding three (3) months. If it can be established that the error was due to some cause, the date of which can be fixed, the overcharge will be computed back to but not beyond that date.

If a meter test reveals that a meter for commercial or industrial service registers more than two percent (2%) slow, Chugach will render a bill for electricity consumed but not covered by bills previously rendered for a period not to exceed three (3) months. If the cause of the error can be definitely established and the actual date on which the error commenced can be determined, the correction to be made will cover the actual period.

If a meter test reveals that a meter of residential service is not registering or is registering less than seventy-five percent (75%) of the actual consumption, an average bill or a bill for the electricity actually consumed but not included in the previous billings will be rendered for a period not to exceed three (3) months.

7.11 Disputed or Erroneous Bills.

A customer who is unable to obtain an informal adjustment of a billing that he believes to be erroneous or excessive may file a written complaint with Chugach as provided in section 6.16 of these Rules and Regulations.

7.12 Change of Occupancy.

A customer who is listed on Chugach's records as the person or entity responsible for electric consumption at a specific location shall give reasonable notice of a contemplated change in occupancy, specifying the date on which service is to be discontinued. If the customer fails to provide the required notice, he will be charged for electric service furnished to the premises until Chugach is provided with adequate notice of change of occupancy.

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7.13 Automatic Landlord Agreement.

The owner of rental property may execute an agreement with Chugach providing for the automatic continuance of service in the owner's name during periods of vacancy or payment by the owner for service when rented if the owner so chooses. It shall be the owner's responsibility to notify Chugach whenever the electric service is to be transferred out of the owner's name.

The owner will be billed as specified in the applicable rate schedule for regular customers of the same class whenever the electric service has not been transferred into the tenant's name. The owner shall be charged an initial connection charge as provided in Rule 6.6 but shall not be charged for renter's connections and disconnections. The automatic landlord agreement shall be terminated upon the owner's request, whenever ownership of the property changes, or pursuant to Rules 5.5, 6.11, or 7.7. In case of reconnection after disconnection pursuant to Rules 5.5, 6.11, or 7.7, a reconnection charge shall be assessed pursuant to Rule 6.6. The automatic landlord account becomes delinquent due to non-payment of bills.

7.14 Primary Metering Discount.

This Rule is cancelled.

7.15 Constant Billing.

When electricity is used as a main source of heat for a private residence or commercial establishment, the customer may request a constant billing based on the estimated average monthly consumption over a one-year period, as determined by Chugach. The account will be adjusted on July 1 of each year or at the termination of service, to reflect the actual consumption.

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8. SERVICE CONNECTIONS**8.1 General Requirements.**

The customer shall own, install, operate and maintain the service equipment, other than the metering equipment, and all wiring and electrical facilities on the customer's side of the service equipment.

8.2 Location and Installation of Meters.

Prior to wiring a building or structure, or performing any electrical construction for a new service or change in service, the customer shall request Chugach to designate the location of the customer service equipment. The service equipment shall be on the side of the building closest to the service pole or the origin of the underground service conductor, unless aesthetic factors dictate otherwise. Chugach will not be obligated to provide service to a structure at a point not designated by Chugach and a customer who proceeds without the designation of location may be required to modify the wiring or other construction to provide for service equipment at a location subsequently designated by Chugach. The metering equipment may not be placed in a locked area. The customer shall, at his own expense, extend his wiring for a new and approved meter location whenever the existing meter has become inaccessible or potentially inaccessible for

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inspection, reading and testing.

8.3 Primary Facilities.

Loads in excess of 50 kilowatts of demand may require primary facilities for adequate service. If primary service is required, the customer will be required to provide space on his property at no cost to Chugach for the transformers, switches, regulators and other equipment necessary to serve the load. The space provided may be outdoors for pad-mount transformers or in a vault inside a building in accordance with Chugach's detailed service specifications.

8.4 Overhead Service.

Chugach will own, install, operate and maintain the overhead service necessary to connect the customer's service equipment to Chugach's distribution facilities. A permanent overhead service will not be provided where Chugach's distribution facilities are underground.

8.5 Underground Service.

Where Chugach's distribution facilities are underground, and in the Central Business District, underground services are required. A customer may obtain an underground service connection to Chugach's overhead distribution system on request. An underground service

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may consist of cables buried directly in the earth, if later excavation for repair or replacement of the service is not objectionable. Where the customer desires to minimize the risk of future excavation on his property, or where the service crosses public sidewalks, streets or alleys, the service conductors shall be installed in buried conduits.

1. Chugach will furnish, connect and maintain, at its expense, all service conductors, except that where the customer's service entrance equipment utilizes bus duct for the connection to Chugach's transformer(s), the customer shall furnish and install the bus duct and shall make the connection to the transformer(s). The customer shall give notice to Chugach in case of a fault or failure of the service entrance bus way (bus duct). The method of connection shall be as specified by Chugach. In the case of a fault or failure in the service entrance bus way (bus duct), the customer shall be liable for necessary repairs. Chugach will disconnect the primary feed to the transformer immediately upon receiving notice of such a fault and reconnect upon receiving notice that the fault or failure has been repaired.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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2. The customer shall reimburse Chugach for the cost of all pavement, cutting, thawing, removal and replacement performed by Chugach.
3. Chugach shall perform at its expense all excavation, trenching and backfilling for underground service connections.
4. Where the service requires the installation of conduit on, within, or under the customer's building, the customer shall make the installation, terminating the conduit clear of the building where it is accessible to Chugach. The conduit size and type shall be as specified by Chugach. Chugach will install all other conduit required for the service.
5. An underground service will not be installed in frozen ground unless the customer agrees to reimburse Chugach for the cost of thawing and related expenses. In general, if an application for underground service is received after September 1 and before spring of the following year, the service will be installed in frozen ground and the customer will be liable for the consequent expenses.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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8.51 Underground Locate Service

Chugach will commence to furnish a locate in accordance with Anchorage Municipal Code Section 26.90.030 within regular business hours after receipt of a request for locate service in the designated area. Those requesting underground locate service will be charged on the following basis:

1. Chugach will provide up to thirty (30) underground locates per month per requester at no charge provided locates are made during normal working hours of 7:00 a.m. to 3:00 p.m. Locates required after normal working hours will be billed at the overtime rate.
2. Underground locates in excess of thirty (30) locates per month will be charged at Chugach direct labor cost plus equipment cost.
3. Utilities providing more than thirty (30) underground locates per month for Chugach shall be given credit, on an hour for hour basis, against any amount due under this section.
4. One locate visit shall be counted for each field visit by an Chugach locator regardless of final markings. Additional locates shall be counted on the occasion where vehicle transportation is required of all locate equipment or locate equipment requires relocation to further transmit a signal. Any locate effort exceeding forty (40) minutes in duration shall be counted as one locate. Each additional forty (40) minute interval shall be counted as an additional locate.
5. If locate service encompasses excavation work which will require more than one day to complete, the person or entity requesting the locate shall provide to Chugach a schedule of the excavation work for which locate service is to be provided.
6. Billing for charges under this section shall be monthly, and shall be due and payable within 10 days of receipt.
7. Chugach may allow the requestor of locate service to contract with a contractor approved by Chugach to locate Chugach's cable at the requestor's own expense and risk.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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8.6 Services to Multi-Occupant Buildings

Except as specified below, Chugach will install an individual meter to measure the energy consumption attributable to each residential and commercial unit in a multiple occupancy building if construction (for the purpose of this section, is defined as begins when the footing are poured) of the building was begun after December 31, 1982.

1. Individual meters are not required:

- a. For transient multi-occupant buildings including, but not limited to, hotels, motels, dormitories, rooming houses, hospitals, nursing homes;
- b. For commercial unit space which is subject to alteration with changes in tenants as evidenced by temporary, construction of non load-bearing walls or floors separating the commercial unit spaces;
- c. Where alternative renewable energy resources are used in connection with central heating, ventilating, and air conditioning systems; and
- d. In common building areas such as hallways, elevators, reception areas, and water pumping facilities.

The customer must arrange the wiring of a multi-occupant building so that the wiring for all stores, apartments, or other individual units will terminate at a common point or points designated by

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Chugach. Multiple points of delivery or metering on the same premises may not be utilized without prior written consent of Chugach.

Prior to the installation of a meter, the meter bases in multiple metered buildings shall be permanently identified in a manner which will designate the store, apartment or another unit being metered and the class of service contemplated. Once identified, the meter will be read to measure consumption according to the original identification and Chugach will not be responsible for any billing errors due to improperly identified, meter bases unless prior written notice has been provided to Chugach of the change of identification.

8.7 Service to Trailer Courts.

Chugach will furnish and install the distribution system necessary to provide metered electric service to each space in a trailer court. The trailer court owner shall grant easements necessary to construct the distribution system and shall provide the necessary service equipment and wiring on the load side of the service equipment in accordance with Chugach's detailed service specifications. Chugach will provide and install the necessary meters in ganged service equipment provided and installed

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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9. RELOCATION OR CONVERSION OF FACILITIES**9.1 Relocation of Facilities.**

Chugach will relocate any portion of its facilities on request if the relocation will not interfere with, or increase the cost of, service to its customers. The party requesting the relocation shall execute a written agreement to pay the cost of relocation, which shall be calculated as the cost of constructing and installing the new facilities, plus the cost of removing the replaced facilities, less the accrued depreciation and salvage value of the replaced facilities. Service conductors and equipment will be relocated at the sole cost and expense of the requesting party. Relocations at the request of the Alaska Department of Highways will be performed in accordance with applicable laws of the State of Alaska.

9.2 Conversion of Overhead to Underground Facilities.

Chugach will convert overhead facilities to underground facilities on request. The customers requesting the conversion shall pay the cost of the conversion which shall be calculated as the cost of constructing and installing the new facilities, plus the cost of removing the overhead facilities, less the accrued depreciation and salvage value of the overhead facilities. Service conductors and equipment will be converted at the sole cost and

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expense of the customer. Written agreements shall be executed prior to the commencement of a conversion project.

Written agreements will not be required for conversion of overhead facilities to underground facilities in a special improvement district created by the City of Anchorage for that purpose under the provisions of chapter 3.08 of the City of Anchorage Municipal Code, copies of which are filed with this tariff.

Conversion of facilities within the Central Business District will be performed at no cost to the customer.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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10. NET METERING

10.1 Eligibility. A retail customer may interconnect and operate in parallel an eligible customer generation system on the customer's side of the utility's meter in accordance with this rule.

- (a) Eligible customer generation systems will not be permitted to interconnect with the utility's system if allowing the eligible customer generation system to be connected to the utility's system would result in the total nameplate capacity, as defined in 3 AAC 50.949(16), of all net metered generation exceeding 1.5 percent of the utility's average retail demand during the prior calendar year as set forth in Section 10.6.
- (b) The utility may refuse to allow a customer to connect, or to maintain connected, net metered generation if the customer sells electric energy to the utility under a contract that allows the customer to collect more than the non-firm power rate per kilowatt-hour set forth in Rate Schedule 500 of this tariff for the electric energy sold.
- (c) Subject to any required regulatory approvals, the utility may refuse to allow a customer to connect an eligible customer generation system if such refusal is reasonably necessary to address system stability constraints or other operational issues.

10.2 Interconnection. Net metered generation must be connected to the customer's facilities in accordance with the applicable requirements of Appendix A to this tariff, "*Interconnection and Operating Requirements For Non-Utility Generation Up to 5,000 kVA.*"

10.3 Application. Prior to connecting an eligible customer generation system, a customer shall submit a completed Interconnection *Application for Non-Utility Generation: Class A-Net Facilities* included in Appendix A.

10.4 Metering. The meter used by the utility to measure the quantity of electrical energy and electrical demand for billing purposes shall be capable of accurately measuring the flow of electric energy both to and from the utility's system, so that the "net electric energy", as defined in 3 AAC 50.949(17), over any billing period can be accurately determined. The utility may install, at the utility's expense, additional metering that directly measures the output of the net metered generation. If the utility elects to install such metering, the customer and the utility shall agree on a meter location that provides the utility with reasonable access to the additional metering.

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10.5 Billing and Charges. Customers with net metered generation will be charged for service, including net flow of electric energy, under the applicable rate schedule for their service except that if there is a net flow of electric energy from the customer's facilities to the utility's system over a billing period, the customer shall receive a credit equal to the product of the net flow of energy during the billing period and the non-firm energy rate set forth in Rate Schedule 500 effective at the end of the billing period. The credit shall be applied against future charges until exhausted. Any unused credit existing at the time of termination of the customer's electric service shall be refunded to the customer without interest.

10.6 Demand and Capacity Information.

- (a) Average Retail Demand Calendar Year 2019 = 105,414.16 kW
- (b) 1.5% of 2019 Average Retail Demand = 1,581.21 kW
- (c) System Net Metered Generation = 909.79 kW
Capacity as of February 29, 2020

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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11. DEFINITIONS

11.1 Applicability of Definitions.

The definitions in this rule are applicable to the terms as used anywhere within this tariff unless the context in which the terms is used clearly indicates another or different definition should be applied.

11.2 Access, Accessible.

Access means capability of being reached quickly for operating, reading, repairing, removing, testing, inspecting, or installing meters, transformers, switches, conductors, electrical enclosures, and related equipment without requiring those for whom access is required to climb over or remove obstacles, to unlock doors, to dismantle fences or gates, and so forth. Accessible equipment is not guarded by architectural enhancements, dogs, elevation, locks, parked vehicles, structures, or other impediments.

11.3 Central Business District.

"Central Business District" means the area bounded by Second Avenue, Ninth Avenue, L Street and Gambell Street.

11.4 Chugach.

"Chugach" means Chugach Electric Association, Inc. When the term is used in the context of the exercise of discretion or authority relating to engineering or service decisions, "Chugach" means the utility manager or his authorized designee. When the term "Chugach" is used in relation to billings, deposits, credit and applications for service, it means the Utility Customer Service Section of Chugach Electric Association, Inc.

11.5 City.

"City" means the City of Anchorage.

11.6 Class of Service.

"Class of Service" means the type of service rendered by Chugach to a customer under a particular rate schedule.

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11.7 Cost.

“Cost” means the total cost to Chugach to construct and install a facility or provide a service, including administrative and material overhead and all payroll costs.

11.8 Delivery Point.

“Delivery Point” means the point at which the customer accepts delivery of electricity, and is normally located where the customer’s service equipment and the Chugach system are connected.

11.9 Demand.

“Demand” means the average rate of energy use for an interval of fifteen (15) minutes, measured in kilowatts (kw).

11.10 Eligible Customer Generation System.

“Eligible Customer Generation System” means a generation system operated and either owned or leased by customer that complies with requirements of 3 AAC 50.920 and therefore is eligible for interconnection under the net metering provisions of this tariff.

11.11 Energy

“Energy” means electrical energy measured in kilowatt hours (kwh).

11.12 Ganged Service Equipment.

“Ganged Service Equipment” means an assembly of two or more individual service equipment with their line sides connected to a common bus.

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11.13 Net Metered Generation.

“Net Metered Generation” means an eligible customer generation system or systems that are interconnected with and operate in parallel with the utility’s system in accordance with net metering provisions of this tariff.

11.14 Peak demand.

“Peak demand” means the maximum rate of energy use, measured in kilowatts.

11.15 Premise.

“Premise” means the real property of the customer in a single location being served by Chugach.

11.16 Primary Service.

“Primary Service” means the conductors and equipment necessary to supply the customer with electricity at the available primary voltages of 2400; 4160; 7200; 12,470 or 34,500 volts.

11.17 Raceway.

“Raceway” means a channel for holding wires, cables, or busbars, which is designed expressly and used solely for that purpose.

11.18 Salvage Value.

“Salvage Value” means the value of retired facilities and equipment as estimated by Chugach.

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11.19 Secondary Service.

“Secondary Service” means service at available voltage of less than 2,400 volts.

11.20 Service Conductors.

“Service Conductors” means the supply conductors which extend from the street main or from transformers to the service equipment on the premises being supplied with service.

11.21 Service Equipment.

“Service Equipment” means the necessary equipment to control and meter the electric energy furnished by Chugach at its point of delivery to the customer.

11.22 Single Family Dwelling.

“Single Family Dwelling” means a building or portion of a building designed or used primarily for occupancy by not more than one family for living and sleeping purposes.

11.23 Tariff.

“Tariff” means the rate schedules, rules and regulations and other documents filed as a tariff with the Regulatory Commission of Alaska.

11.24 Temporary Service.

“Temporary Service” means service provided on an interim basis during a construction phase or any other service provided by use of facilities which cannot be reused or continued as permanent facilities and must be removed when the temporary need has ceased. The duration of the service will not be considered as a controlling factor in the determination of whether a service is temporary in nature.

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SPECIAL CONTRACT TO WHICH CHUGACH IS A PARTY
3 AAC 48.380(26)

THE FOLLOWING IS A LISTING PURSUANT TO 3 AAC 48.370(26), OF ALL SPECIAL CONTRACTS ASSIGNED TO CHUGACH AND TO WHICH CHUGACH IS A PARTY:

1. Agreement Between the United States Army and the Municipality of Anchorage d/b/a Municipal Light and Power for Interruptible Service dated December 2, 1981.
2. Agreement Between the United States Air Force and the Municipality of Anchorage d/b/a Municipal Light & Power for Interruptible Service dated October 27, 1981.
3. Agreement Between Anchorage Sand & Gravel Co., Inc. and the Municipality of Anchorage d/b/a Municipal Light & Power for Interruptible Power Service dated April 26, 1999.
4. Agreement Between the Anchorage School District and the Municipality of Anchorage d/b/a Municipal Light & Power for Interconnection and Operation of Standby Generators dated February 3, 2006.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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SCHEDULE OF FEES AND CHARGES

<u>Rule</u>	<u>Fee or Charge</u>	<u>Amount</u>
5.2	Meter Test	\$ 55.00
6.6	Connection of Existing Facilities during regular business hours	
	7:30 A.M. – 5 P.M. M-F	
	Cycle Read	\$ 16.00
	Read Only	\$ 30.00
	Physical Cut-In	\$ 37.00
6.6	Connection of Existing Facilities outside regular business hours	
	5 P.M. – 10 P.M. M-F	\$ 95.00
	10 P.M. – 7:30 A.M. M-F	\$200.00
	Weekends and Holidays	\$200.00
	Scheduled Service Disconnect/Reconnect By Line Crew (During Regular Business Hours)	\$175.00
6.7	Deposit:	
	The amount of deposit for all customer classes, per meter, meter, will be 1.5 times the estimated average monthly bill at that location.	
7.4	Late payment Assessment, Schedules 11 and 21	\$ 2.00
	Late payment Assessment, Schedules 22 and 23: One percent on past due amount.	(1%)
7.6	Dishonored check fee	\$ 25.00
8.51	Underground locate Service, above monthly limit, at cost of labor, plus equipment	
	Locator or contractor fees:	
	Daytime	\$ 36.00/hr
	Nights, weekends, holiday (double time)	\$ 57.00/hr
	Equipment/truck	\$ 3.00/hr

OTHER MATERIALS AND SERVICE CHARGES NOT ITEMIZED ON THIS SHEET ARE BILLED AT ACTUAL COST.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

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Effective: **December 23, 2020**

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STATE OF ALASKA
REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULE 01
FUEL AND PURCHASED
POWER COST ADJUSTMENT

A. Applicability

The rates in all filed rate schedules shall be subject to adjustment by the applicable Fuel and Purchased Power Cost Adjustment defined on Tariff Sheet 66, Tariff Sheet 67 and Tariff Sheet 69, and calculated on Tariff Sheet 68 and 70.

B. Fuel and Purchased Power Cost Adjustment

The base cost/kWh of fuel and purchased power is defined on Tariff Sheet 67 and equals \$0.00000/kWh for retail customers. Billings to customers will be increased (or decreased) to reflect the amount by which the weighted average estimated cost of power (fuel plus purchased power less profits received through the sale of economy energy) per kWh sold is greater than or less than the base cost in accordance with the procedure set forth in Tariff Sheet 66.

C. Fuel and Purchased Power Cost Balance Account

Chugach shall maintain a Fuel and Purchased Power Cost Balance Account commencing July 1, 1986, which balance thereafter shall reflect the sum of the debit and credit entries described as follows:

- (1) A debit entry equal to the actual purchased power and consumed fuel costs for retail customers for each month.
- (2) A credit entry equal to the total number of kWh of energy sold to retail customers during each month multiplied by the sum of the base cost plus the adjustment factor applied for the retail classes.
- (3) A debit entry equal to the amount paid to any interruptible ENSTAR customer pursuant to Commission ordered sharing of the costs of interruptions. Any amount so included in the determination of Power Cost Adjustment shall first have been reported to the Commission at least 30 days prior to the filing of such determination of Power Cost Adjustment.
- (4) A credit entry equal to the actual amount of profits earned from economy energy transactions for each month of the quarterly analysis.
- (5) A debit entry equal to Alaska Intertie related expenses.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

D. Revision of the Power Cost

- (1) By the first day of each quarter Chugach will, by Tariff Advice Letter, file supporting information to evidence the balance in the Fuel and Purchased Power Cost Balance account and the development of the average fuel and purchased power costs per kWh sold for the ensuing quarter. Supporting information to be filed includes:
 - (a) Calculation of the Fuel and Purchased Power Cost Adjustment Factor as detailed on Tariff Sheet 66. This calculation shall include:
 - (i) A schedule calculating the estimated kWh of retail energy to be sold in the ensuing quarter (F.5).
 - (ii) A schedule of the estimated cost of retail energy that will be generated and purchased in the ensuing quarter (F.1).
 - (iii) Invoices and/or other documentation to substantiate the fuel, fuel storage, and purchased power costs of the most recent quarter for which actual data is available. Such documentation shall include transfers from the Electric Fund to the Gas Fund to account for fuel usage for the quarter.
 - (b) The actual monthly average heat rate for thermal generation for the most recent quarter for which actual data is available.
 - (c) Calculation of the Fuel and Purchased Power Cost Adjustment Factor for Service at Primary Voltage and Fuel and Purchased Power Cost Adjustment for Service at Secondary Voltage as detailed on Tariff Sheet No. 69.
- (2) The revised Power Cost Adjustment may be implemented immediately upon filing subject to subsequent Commission approval, and will be effective for all billings subsequent to the revision date. Revision dates will coincide with the beginning of a monthly billing cycle.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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E. Determination of Cost of Stored Gas

Chugach shall maintain an inventory account, Gas In Storage, whose balance shall be the sum of:

1. Debit entries for the acquisition costs of all gas acquired or produced for placement in storage. Acquisition cost of purchased gas shall be all amounts invoiced and paid to the supplier of the gas. Acquisition cost of gas produced by Chugach shall be the Transfer Price effective at the time that the gas is placed in storage.
2. Debit entries for the cost of transportation of the gas from the point of acquisition to the CINGSA storage facility.
3. Debit entries for all CINGSA charges incurred not including Reservation Charges, and Capacity Charges under Rate Schedule FSS, and any charges associated with withdrawal of gas from storage.
4. Credit entries for the Cost of Stored Gas withdrawn from storage. Average Cost of Stored Gas in any month shall be the balance at the end of the previous month divided by the volume, in Mcf, of Gas In Storage at the end of the same month. Cost of Stored Gas withdrawn from storage shall be the sum of the product of the Average Cost of Stored Gas multiplied by the volume of gas withdrawn from storage, plus CINGSA charges associated with withdrawal of the gas from storage.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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F. Determination of Cost of Power Adjustment: (Methodology)

(1) Estimated Costs of Fuel and Purchased Power for the Quarter Beginning _____:

	Est. Quantities (A)	Avg Cost/Mcf (B)	Total = (A *B) (C)
Sources			
a) Natural Gas			
Stored Gas	_____ Mcf	\$ _____ /Mcf	\$ _____
Hilcorp	_____ Mcf	\$ _____ /Mcf	\$ _____
CEA	_____ Mcf	\$ _____ /Mcf	\$ _____
ConocoPhillips	_____ Mcf	\$ _____ /Mcf	\$ _____
Cook Inlet Energy	_____ Mcf	\$ _____ /Mcf	\$ _____
AIX Energy	_____ Mcf	\$ _____ /Mcf	\$ _____
Furie	_____ Mcf	\$ _____ /Mcf	\$ _____
Chugach	_____ Mcf	\$ _____ /Mcf	\$ _____
Total Natural Gas	_____ Mcf	\$ _____ /Mcf	\$ _____
Gas Storage Reservation	_____ Mcfd	\$ _____ /Mcfd	\$ _____
Gas Storage Capacity	_____ Mcf	\$ _____ /Mcf	\$ _____
Transportation (Variable)	_____ Mcf	\$ _____ /Mcf	\$ _____
b) Purchase Power:			
Bradley Lake	_____ MWh		\$ _____
Bradley Wheeling	_____ MWh	\$ _____ /MWh	\$ _____
Bradley Capacity	_____ MWh	\$ _____ /MWh	\$ _____
Spinning Reserve ¹	_____ MWh	\$ _____ /MWh	\$ _____
c) Fuel Oil:	_____ GAL	\$ _____ /GAL	\$ _____
d) Intertie Expense:			\$ _____
e) Economy Energy Purchase	_____ MWh	\$ _____ /MWh	\$ _____
f) Cogen/Small Power Purch	_____ MWh	\$ _____ /MWh	\$ _____

Total Cost of Fuel and Purchased Power [Total of a) through f), above] \$ _____

(2) Profits From Economy Energy Sales: (\$ _____)

(3) Cost of Power Clearing Account Balance:

Actual Balance as of _____ / _____ / _____ \$ _____

Estimated Balance as of _____ / _____ / _____ Under (Over) Recovery \$ _____

(5) Estimated Retail Sales (kWh) _____ kWh

(6) Average Cost of Power [(4) / (5)] \$ _____ /kWh

(7) Base Cost of Power \$ _____ /kWh

(8) Cost of Power Adj [(6) - (7)] \$ _____ /kWh

¹ 2011 Intertie Agreement

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Chugach Electric Association, Inc.

G. Determination of Base Cost of Power:

Base Cost of Power is \$0.00000/kWh

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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F. Determination of Cost of Power Adjustment:(1) Estimated Costs of Fuel and Purchased Power for the Quarter Beginning October 1, 2020:

Sources	Est. Quantities (A)	Avg Cost/Mcf (B)	Total = (A*B) (C)
a) Natural Gas:			
Stored Gas	0 Mcf	\$0.0/Mcf	\$0.00
Hilcorp - Interruptible	690,000 Mcf	\$7.8500/Mcf	\$5,416,500
CEA	0 Mcf	\$0.00/Mcf	\$0.00
ConocoPhillips	0 Mcf	\$0.00/Mcf	\$0.00
Cook Inlet Energy	0 Mcf	\$0.00/Mcf	\$0.00
AIX Energy	0 Mcf	\$0.00/Mcf	\$0.00
Furie	0 Mcf	\$0.00/Mcf	\$0.00
Chugach	1,029,598 Mcf	\$2.44668/Mcf	\$2,519,097
Total Natural Gas	1,719,598 Mcf	\$4.61480/Mcf	\$7,935,597
Gas Storage Reservation	30,000 Mcfd	\$5.1685/Mcfd	\$155,055
Gas Storage Capacity	1,500,000 Mcf	\$0.07050/Mcf	\$105,750
Transportation (Variable)	1,495,269 Mcf	\$0.60845/Mcf	\$909,799
b) Purchased Power:			
Bradley Lake	21,190 MWh	340,422/Month	\$1,021,266
Bradley Wheeling	21,190 MWh	\$8.90/MWh	\$188,591
Bradley Wheeling (HEA)			\$22,074
Bradley Capacity	0 MWh	\$0.00/MWh	\$0.00
Spinning Reserve ¹	0 MWh	\$0.00/MWh	\$0.00
c) Fuel Oil:	1,932 GAL	\$1.553/GAL	\$3,000
d) Intertie Expense:			\$61,587
e) Economy Energy Purchases	0 MWh	\$0.00/MWh	\$0.00
f) Cogen/Small Power Purch	0 MWh	\$0.00/MWh	\$0.00
Total Cost of Fuel and Purchased Power [Total of a) through f), above]			\$10,402,719
(2) Profits From Economy Energy Sales:			(\$675,000)
(3) Cost of Power Clearing Account Balance			
Actual Balance as of <u>6/30/2020</u>			(\$1,767,671)
Estimated Balance as of <u>9/30/2020</u>		Under (Over) Recovery	(\$142,944)
(4) Total (1), (2), (3), above			\$9,870,663
(5) Estimated Retail Sales (kWh)			245,711,056/kWh
(6) Average Cost of Power [(4) / (5)]			\$0.04017/kWh
(7) Base Cost of Power			\$0.00/kWh
(8) Cost of Power Adj [(6) - (7)]			\$0.04017/kWh

¹ 2011 Intertie Agreement Pursuant to U-18-102 (51) U-19-020(46)/U-19-021(46)

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J. Determination of COPA for Service at Primary Voltage (COPAp_{primary}) and COPA for Service at Secondary Voltage (COPAs_{secondary}):

- | | | |
|------|---|-------|
| (1) | Primary Loss Factor: | _____ |
| (2) | Secondary Loss Factor: | _____ |
| (3) | Sales at Primary Voltage (<i>prior quarter</i>): | _____ |
| (4) | Sales at Secondary Voltage (<i>prior quarter</i>): | _____ |
| (5) | Total Sales [(3) + (4)]: | _____ |
| (6) | Feeder Input for Sales at Primary Voltage [(3) / (1 - (1))]: | _____ |
| (7) | Feeder Input for Sales at Secondary Voltage: [(4) / (1 - (2))]: | _____ |
| (8) | Total Feeder Input [(6) + (7)]: | _____ |
| (9) | COPA Normalization Factor [(5) / (8)]: | _____ |
| (10) | COPAp _{primary} [(COPA * (9) / (1 - (1))]: | _____ |
| (11) | COPAs _{secondary} [COPA * (9) / (1 - (2))]: | _____ |

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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J. Determination of COPA for Service at Primary Voltage (COPAprimary) and COPA for Service at Secondary Voltage (COPAsecondary):

(1)	Primary Loss Factor:	<u>0.0025</u>
(2)	Secondary Loss Factor:	<u>0.0196</u>
(3)	Sales at Primary Voltage (<i>quarter ending June 2020</i>):	<u>52,368,825</u>
(4)	Sales at Secondary Voltage (<i>quarter ending June 2020</i>):	<u>157,921,198</u>
(5)	Total Sales [(3) + (4)]:	<u>210,290,023</u>
(6)	Feeder Input for Sales at Primary Voltage [(3) / (1 - (1))]:	<u>52,500,075</u>
(7)	Feeder Input for Sales at Secondary Voltage: [(4) / (1 - (2))]:	<u>161,078,333</u>
(8)	Total Feeder Input [(6) + (7)]:	<u>213,578,409</u>
(9)	COPA Normalization Factor [(5) / (8)]:	<u>0.98460</u>
(10)	COPAprimary [(COPA * (9) / (1 - (1))]:	<u>0.03965</u>
(11)	COPAsecondary [COPA * (9) / (1 - (2))]:	<u>0.04034</u>

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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GAS COST RATE ADJUSTMENT HISTORY

DATE	GCRA
August 1, 1979	0.1656
September 1, 1979	0.2399
October 1, 1979	0.1548
November 1, 1979	0.0484
December 1, 1979	-0-
January 1, 1980	(0.0102)
February 1, 1980	0.0873
March 1, 1980	0.1066
April 1, 1980	0.1044
May 1, 1980	0.0805
June 1, 1980	0.1540
July 1, 1980	0.1915
August 1, 1980	0.0598
September 1, 1980	0.0493
October 1, 1980	0.0806
November 1, 1980	0.0494
December 1, 1980	0.1270
January 1, 1981	0.3480
February 1, 1981	0.2078
March 1, 1981	0.2059
April 1, 1981	0.3097
May 1, 1981	0.3553
June 1, 1981	0.3599
July 1, 1981	0.3656
August 1, 1981	0.3644
September 1, 1981	0.1955
October 1, 1981	0.1948
November 1, 1981	0.1907
December 1, 1981	0.1846
January 1, 1982	0.0017
February 1, 1982	0.0016
March 1, 1982	0.0016
April 1, 1982	0.0015
May 1, 1982	0.0015
June 1, 1982	0.0014
July 1, 1982	(0.0240)
August 1, 1982	(0.0241)
September 1, 1982	(0.0239)
October 1, 1982	(0.0237)
November 1, 1982	0.0318
December 1, 1982	0.0320
January 1, 1983	0.0328
February 1, 1983	0.5562
March 1, 1983	0.5610

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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GAS COST RATE ADJUSTMENT HISTORY

DATE	GCRA
April 1, 1983	0.5597
May 1, 1983	0.5567
June 1, 1983	0.5501
July 1, 1983	0.5404
August 1, 1983	0.6180
September 1, 1983	0.6380
October 1, 1983	0.6609
November 1, 1983	0.6826
December 1, 1983	0.6567
January 1, 1984	0.6583
February 1, 1984	0.6458
March 1, 1984	0.6249
April 1, 1984	0.6204
May 1, 1984	0.5552
June 1, 1984	0.5555
July 1, 1984	0.5554
August 1, 1984	0.5631
September 1, 1984	0.5581
October 1, 1984	0.8062
November 1, 1984	0.7872
December 1, 1984	0.7824
January 1, 1985	0.7834
February 1, 1985	0.7968
March 1, 1985	0.7823
April 1, 1985	0.8127
May 1, 1985	0.8264
June 1, 1985	0.8365
July 1, 1985	0.8407
August 1, 1985	0.8424
September 1, 1985	0.8326
October 1, 1985 *	0.6926
November 1, 1985	0.8441
December 1, 1985	0.8367
January 1, 1986 *	0.8012
February 1, 1986	1.1049
March 1, 1986 *	1.1068
April 1, 1986	1.1080
May 1, 1986	1.2228
June 1, 1986	1.2554

FUEL AND PURCHASED POWER COST ADJUSTMENT

DATE	FPPCA
August 1, 1986 - October 30, 1986	1.520¢/kWh
November 1, 1986 - March 31, 1987	1.656¢/kWh
April 1, 1987 - June 30, 1987	0.860¢/kWh
July 1, 1987 - September 30, 1987	0.839¢/kWh
October 1, 1987 - December 31, 1987	0.807¢/kWh
January 1, 1988 - March 31, 1988	1.162¢/kWh
April 1, 1988 - June 30, 1988	0.961¢/kWh
July 1, 1988 - September 31, 1988	0.609¢/kWh
October 1, 1988 - December 31, 1988	1.450¢/kWh
January 1, 1989 - March 31, 1989	2.133¢/kWh

* Includes Refund to Customers Pursuant to Docket U-84-1

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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FUEL AND PURCHASED POWER COST ADJUSTMENT

<u>DATE</u>	<u>COPA</u>
April 1, 1989 - June 30, 1989	2.046¢/kWh
July 1, 1989 – June 30, 1990	1.832¢/kWh
July 1, 1990 – September 30, 1990	1.357¢/kWh
October 1, 1990 – December 31, 1990	0.336¢/kWh
January 1, 1991 - March 31, 1991	1.406¢/kWh
April 1, 1991 - June 30, 1991	1.253¢/kWh
July 1, 1991 – September 30, 1991	1.220¢/kWh
October 1, 1991 – November 30, 1991	0.704¢/kWh
December 1, 1991 - March 31, 1992	0.454¢/kWh
April 1, 1992 - June 30, 1992	0.595¢/kWh
July 1, 1992 – September 30, 1992	0.783¢/kWh
October 1, 1992 – December 31, 1992	0.460¢/kWh
January 1, 1993 - March 1993	0.451¢/kWh
April 1, 1993 - June 30, 1993	0.679¢/kWh
July 1, 1993 – September 30, 1993	0.590¢/kWh
October 1, 1993 – December 31, 1993	0.489¢/kWh
January 1, 1994 - March 31, 1994	0.284¢/kWh
April 1, 1994 – June 30, 1994	0.290¢/kWh
July 1, 1994 – September 30, 1994	0.310¢/kWh
October 1, 1994 – December 31, 1994	0.419¢/kWh
January 1, 1995 - March 31, 1995	0.424¢/kWh
April 1, 1995 - April 30, 1995	0.427¢/kWh
May 1, 1995 - June 30, 1995	(0.342¢)/kWh
July 1, 1995 - September 30, 1995	(0.309¢)/kWh
October 1, 1995 – December 31, 1995	(0.491¢)/kWh
January 1, 1996 - March 31, 1996	(0.267¢)/kWh
April 1, 1996 - June 30, 1996	(0.226¢)/kWh
July 1, 1996 - September 30, 1996	(0.342¢)/kWh
October 1, 1996 – December 31, 1996	(0.367¢)/kWh
January 1, 1997 - March 31, 1997	(0.329¢)/kWh
April 1, 1997 – June 30, 1997	(0.285¢)/kWh
July 1, 1997 – December 31, 1997	(0.284¢)/kWh
January 1, 1998 - March 31, 1998	(0.557¢)/kWh
April 1, 1998 – June 30, 1998	(0.552¢)/kWh
July 1, 1998 – September 30, 1998	(0.542¢)/kWh
October 1, 1998 – December 31, 1998	(0.545¢)/kWh
January 1, 1999 - March 31, 1999	(0.551¢)/kWh
April 1, 1999 – June 30, 1999	(0.248¢)/kWh
July 1, 1999 - September 30, 1999	(0.258¢)/kWh

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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FUEL AND PURCHASED POWER COST ADJUSTMENT (Continued)

<u>DATE</u>	<u>COPA</u>
October 1, 1999 - December 31, 1999	(0.431)¢/kWh
January 1, 2000 - March 31, 2000	(0.518)¢/kWh
April 1, 2000 - June 30, 2000	(0.509)¢/kWh
July 1, 2000 - September 30, 2000	(0.835)¢/kWh
October 1, 2000 - December 31, 2000	(0.692)¢/kWh
January 1, 2001 - March 31, 2001	(0.616)¢/kWh
April 1, 2001 - June 30, 2001	(0.743)¢/kWh
July 1, 2001 - September 30, 2001	(0.816)¢/kWh
October 1, 2001 - December 31, 2001	(0.266)¢/kWh
January 1, 2002 - March 31, 2002	(0.700)¢/kWh
April 1, 2002 - June 30, 2002	(0.269)¢/kWh
July 1, 2002 - September 30, 2002	(0.609)¢/kWh
October 1, 2002 - December 31, 2002	(0.621)¢/kWh
January 1, 2003 - March 31, 2003	(0.469)¢/kWh
April 1, 2003 - June 30, 2003	(0.897)¢/kWh
July 1, 2003 - September 30, 2003	(0.226)¢/kWh
October 1, 2003 - December 31, 2003	0.287¢/kWh
January 1, 2004 - March 31, 2004	0.676¢/kWh
April 1, 2004 - June 30, 2004	0.683¢/kWh
July 1, 2004 - September 30, 2004	0.572¢/kWh
October 1, 2004 - December 31, 2004	0.420¢/kWh
January 1, 2005 - March 31, 2005	0.178¢/kWh
April 1, 2005 - June 30, 2005	0.668¢/kWh
July 1, 2005 - September 30, 2005	0.870¢/kWh
October 1, 2005 - December 31, 2005	(0.030)¢/kWh
January 1, 2006 - March 31, 2006	(0.311)¢/kWh
April 1, 2006 - June 30, 2006	(0.372)¢/kWh
July 1, 2006 - September 30, 2006	(1.611)¢/kWh
October 1, 2006 - December 31, 2006	(1.707)¢/kWh
January 1, 2007 - March 31, 2007	(1.457)¢/kWh
April 1, 2007 - June 30, 2007	(1.498)¢/kWh
July 1 - September 30, 2007	(1.026)¢/kWh
October 1 - December 31, 2007	(1.126)¢/kWh
January 1 - March 31, 2008	(0.655)¢/kWh

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

FUEL AND PURCHASED POWER COST ADJUSTMENT
(Continued)

<u>DATE</u>	<u>COPA</u>
April 1, 2008 - June 30, 2008	\$(0.00543)
July 1, 2008 - September 30, 2008	\$0.00329
October 1, 2008 - December 31, 2008	\$(0.00389)
January 1, 2009 - March 31, 2009	\$0.00270
April 1, 2009 - June 30, 2009	\$0.01766
July 1, 2009 - September 30, 2009	\$0.01959
October 1, 2009 - December 31, 2009	\$0.02009
January 1, 2010 - March 31, 2010	\$0.01127
April 1, 2010 - June 30, 2010	\$0.02930
July 1, 2010 - September 30, 2010	\$0.01815
October 1, 2010 - December 31, 2010	\$0.02079
January 1, 2011 - March 31, 2011	\$0.02760
April 1, 2011 - June 30, 2011	\$0.02758
July 1, 2011 - September 30, 2011	\$0.01683
October 1, 2011 - December 31, 2011	\$0.01927
January 1, 2012 - March 31, 2012	\$0.03599
April 1, 2012 - June 30, 2012	\$0.02782
July 1, 2012 - September 30, 2012	\$0.00497
October 1, 2012 - December 31, 2012	\$0.02235
January 1, 2013 - March 31, 2013	\$0.01917
April 1, 2013 - June 30, 2013	\$0.03506
July 1, 2013 - September 30, 2013	\$0.02974
October 1, 2013 - December 31, 2013	\$0.03531
January 1, 2014 - March 31, 2014	\$0.03326
April 1, 2014 - June 30, 2014	\$0.03842
July 1, 2014 - September 30, 2014	\$0.04723
October 1, 2014 - December 31, 2014	\$0.04175
January 1, 2015 - March 31, 2015	\$0.04190
April 1, 2015 - June 30, 2015	\$0.04362
July 1, 2015 - September 30, 2015	\$0.05468
October 1, 2015 - December 31, 2015	\$0.04510
January 1, 2016 - March 31, 2016	\$0.04445
April 1, 2016 - June 30, 2016	\$0.05517
July 1, 2016 - August 14, 2016	\$0.06129

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

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Effective: **December 23, 2020**

Chugach Electric Association, Inc.

P.O. Box 196300 Anchorage, Alaska 99519-6300

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STATE OF ALASKA
REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

Regulatory Cost Charge

The Regulatory Cost Charge is a special surcharge applied to all regulated retail customer billings to pay the utility's share of the budget of the Commission.

Regulatory Cost Charge

\$0.000654 per kWh

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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STATE OF ALASKA
REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULE 11
RESIDENTIAL SERVICE

Applicable to:

Single-family dwellings, for domestic and household purposes.

Character of Service:

Single phase 60 Hertz alternating current at 120/240 volts or 120/208Y volts, 3-wire, as available.

Monthly Rate:

Customer Charge: \$13.62

Energy Charge: 15.274 cents per kWh

Minimum Monthly Charge: The customer charge of \$13.62

Conditions:

This schedule may be applied to a home occupation conducted in the single-family dwelling by the family members if the demand and energy consumption created by the business is less than and incidental to the demand and energy consumption of the residential load.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 21
GENERAL SERVICE – SMALL

Applicable to:

Any class of service which does not qualify for a residential rate schedule and where the demand does not exceed twenty (20) kilowatts (kW) for three consecutive months.

Character of Service:

Single or three-phase 60 Hertz alternating current at 120/240, 120/208Y, 208Y/120, 240/120 or 480Y/277 volts as available.

Monthly Rate:

Customer Charge: \$30.46

Energy Charge: 11.878 cents per kWh

Minimum Monthly Charge: The customer charge of \$30.46

Fuel and Purchased Power Cost Adjustment: The energy charge of the foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 22
GENERAL SERVICE - LARGE
AT SECONDARY VOLTAGE

Applicable to:

Any class of service with a demand exceeding twenty (20) kilowatts (kW) for three consecutive months and metered at Secondary voltage.

Character of Service:

Single or three phase 60 Hertz alternating current at 120/240, 240/120, 208Y/120 or 480Y/277 volts as available.

Monthly Rate:

Customer Charge:	\$92.61
Demand Charge:	\$44.53 per kW of billing demand
Energy Charge:	0.498 cents per kWh

Minimum Monthly Charge: The customer charge of \$92.61

Conditions:

1. Demand is determined by using the maximum average rate of energy use for any 15 minute interval.
2. The billing demand shall be the greater of the following:
 - a. The recorded maximum demand for the month, or
 - b. Eighty percent (80%) of the maximum demand recorded during the preceding eleven (11) months, or
 - c. The contract demand, under a special contract for a customer with on-site generation.
3. Demand charges for self-generating customers may not be calculated based upon demand required to resynchronize and return the customer's self-generating output to parallel operation with the utility as measured during the one-hour period after power to a self-generating customer is restored following a forced outage that originates on the utility's side of the meter, and affects service to the self-generating customer.

Fuel and Purchased Power Cost Adjustment: The energy charge of the foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power, as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 23
GENERAL SERVICE - LARGE
AT PRIMARY VOLTAGE

Applicable to:

Any class of service with a demand exceeding twenty (20) kilowatts (kW) for three consecutive months and metered at Primary voltage.

Character of Service:

Three phase 60 Hertz alternating current at 4160Y/2400, 12470Y/7200, or 34500Y/19900 volts as available.

Monthly Rate:

Customer Charge:	\$619.42
Demand Charge:	\$43.10 per kW of billing demand
Energy Charge:	0.488 cents per kWh
Minimum Monthly Charge:	The customer charge of \$619.42

Conditions:

1. Demand is determined by using the maximum average rate of energy use for any 15 minute interval.
2. The billing demand shall be the greater of the following:
 - a. The recorded maximum demand for the month, or
 - b. Eighty percent (80%) of the maximum demand recorded during the preceding eleven (11) months, or
 - c. The contract demand, under a special contract for a customer with on-site generation.
3. Demand charges for self-generating customers may not be calculated based upon demand required to resynchronize and return the customer's self-generating output to parallel operation with the utility as measured during the one-hour period after power to a self-generating customer is restored following a forced outage that originates on the utility's side of the meter, and affects service to the self-generating customer.
4. The customer shall furnish, install, operate and maintain all electrical facilities on the load side of his service equipment.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULE 23
GENERAL SERVICE - LARGE
AT PRIMARY VOLTAGE
(Continued)

4. Customers renting transformers from Chugach under this schedule prior to September 29, 1982 may continue to rent them for 11.74 cents per month per KVA of transformer capacity. A customer electing to discontinue renting transformers from Chugach shall, at his expense, deliver the transformer(s) to Chugach's transformer yard at 1200 East First Avenue, Anchorage.
5. Chugach will not rent transformers to new customers or customers with changed service requirements after September 29, 1982.
6. Primary metering will normally not be available unless the customer requires primary voltage for his distribution system. After October 1, 1990, customers requesting primary metering will execute a contract to take the service specified for minimum five year period. If a customer terminates the service prior to completing five (5) years of service, he shall pay Chugach for unrecovered capital investment in an amount equal to the difference between gross revenues received to date and the cost of Chugach's associated capital investment.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 25
REPLACEMENT ENERGY SERVICE - AWWU

Applicable to:

The Municipality of Anchorage, d/b/a/ Anchorage Water and Wastewater Utility ("AWWU"), solely for the purpose of AWWU providing replacement energy to the Eklutna Power Project as compensation for the diversion of water from the Eklutna Power Project to the Eklutna Water Project.

Character of Service:

Replacement energy service will be provided to AWWU, with such energy to be received at the Eklutna Power Project through displacement by means of an adjustment to Chugach's monthly allotment of delivered energy from the Eklutna Power Project.

Monthly Rate:

Energy Charge: 2.561 cents per kWh

Minimum Monthly Charge: None

Conditions:

The quantity of replacement energy for which Chugach bills AWWU under this schedule shall be equal to the quantity of displaced energy which Chugach supplied to the Eklutna Power Project through an adjustment to Chugach's monthly allotment of delivered energy.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 27
INTERRUPTIBLE POWER AT SECONDARY VOLTAGE

Applicable to:

Customers with expected peak loads of at least 100 kW, subject to the limitations described below, taking service through facilities installed entirely at customer expense, or taking service through facilities which have been in continuous use for a period of 60 consecutive months prior to the customer taking service under Schedule 27.

Availability:

Only 10 MW of capacity is available for service under this rate schedule. Service is available for up to 10 MW of peak load. Service will not be available to new customers under this Schedule if the sum of the expected peak loads of all customers taking service under this schedule including the expected peak load of the customer making application exceeds 10 MW. For purposes of this determination, expected peak loads of existing customers taking service under Schedule 27 will be deemed to be the higher of the highest historical load of the customer or the peak load declared by the customer when he/she first applied for the service, unless the utility has credible specific evidence that the customer's peak load will differ from this level.

Term of Service and Waiting List Provisions:

Customers denied service under Schedule 27 because the sum of expected peak loads would exceed 10 MW may have their names placed on a waiting list (the "Schedule 27 waiting list"). As service becomes available due to discontinuation of service to existing customers, service will be offered to customers on the schedule 27 waiting list, in the same order as the customers were added to the waiting list, until all available service has been taken by new customers, or all customers on the Schedule 27 waiting list have been offered service.

Customers initially taking service under Schedule 27 may reserve service for a term of up to ten years. Customers with less than 5 years' remaining term may extend their term to up to five years from date of extension.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

Chugach will require customers taking service under Schedule 27 to designate the expected peak load and the periods during which they will take service each year. Chugach may refuse to grant an extension of the service term to any customer if there is a waiting list at the time of the request and the customer has not met one of the following conditions:

(1) during the 12 months prior to the request the customer has taken an amount of energy equal to 4% of the greater of the product of the number of hours in the customer's designated service period and the customer's designated peak load, or the product of the number of hours in the customer's designated service period and the customer's maximum historical peak load, or

(2) during the 24 months prior to the request the customer has taken an amount of energy equal to 8% of the greater of the product of the number of hours in the customer's designated service period for the two years and the customer's designated peak load, or the product of the number of hours in the customer's designated service period for the two years and the customer's maximum historical peak load.

A customer taking service under Schedule 27 may modify his/her designated service one time during any 12 month period *provided that* such modification does not result in an increase in expected peak load for Schedule 27, as defined above, to more than 10 MW for any period.

A customer may modify his/her designated peak load one time during any 12 month period *provided that* such modification does not result in an increase in expected peak load for Schedule 27, as defined above, to more than 10 MW for any period *and provided further that* such modification does not reduce the customer's expected peak load to a level below 100 kW. For a reduction in designated peak load, the customer will be required to present credible evidence to Chugach that his/her peak load will not exceed the new designation.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

RATE SCHEDULE 27
INTERRUPTIBLE POWER AT SECONDARY VOLTAGE
(CONTINUED)

Character of Service:

Single or three phase 60 Hertz alternating current at 120/240, 240/120, 208Y/120, or 480Y/277 volts, as available.

Monthly Rate:

Customer Charge: \$92.61

Demand Charge: None

Energy Charge: 37.673 cents per kWh

Minimum Monthly Charge: The customer charge of \$92.61

Special Terms and Conditions:

1. Service under Schedule 27 is interruptible at any time without notice at the utility's discretion. After each interruption, Chugach will restore service as quickly as possible provided that service to customers taking service under any rate schedule other than Schedules 27, 600, 700, and 750 is not adversely affected.
2. The Utility may install, at customer expense, automatic load shedding equipment which will disconnect the customer's loads if system frequency falls below 59.7 Hertz.
3. The Utility may install, at customer expense, remote relaying equipment which will allow the Utility's dispatchers to disconnect the customer's loads by operation of the relay from the dispatch center.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

RATE SCHEDULE 27
INTERRUPTIBLE POWER AT SECONDARY VOLTAGE
(CONTINUED)

4. The utility may install, at customer expense, all necessary remote metering equipment and information display to allow the Utility's dispatchers to know what the customer's loads are at any time and to know what the total interruptible load on the system is at any time.
5. Chugach will not be obligated to acquire, install, or purchase generating capacity or contract for wholesale power to serve any customer taking service under this rate schedule. Chugach will design, construct, or install any facilities deemed necessary to serve any customer taking service under this rate schedule only if the customer agrees to pay, in advance, the cost of these facilities.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULE 28
NET REQUIREMENTS SERVICE
AT SECONDARY VOLTAGE

Applicable to:

Any customer that is otherwise eligible for service under, and satisfies the conditions of, Schedule 22 and that is partly served by on-site generation owned by the customer, where such generation has a nameplate capacity greater than 25 kW but not greater than 5,000 kW, and completed all procedures in Section 207 of Chugach's Interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVa.

Character of Service:

Single or three phase 60 Hertz alternating current at 120/240, 240/120, 208Y/120 or 480Y/277 volts as available.

Monthly Rate:

Customer Charge:	\$92.61
Demand Charge:	\$44.53 per kW of billing demand
Energy Charge:	0.498 cents per kWh

Minimum Monthly Charge: The customer charge of \$92.61

Conditions:

1. Demand is determined by using the maximum average rate of energy supplied by Chugach for any 15 minute interval.
2. The billing demand shall be the greater of the following:
 - a. The recorded maximum demand supplied by Chugach for the month, or
 - b. Eighty percent (80%) of the maximum recorded demand supplied by Chugach during the preceding eleven (11) months, or
 - c. The contract demand, under a special contract.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 28
NET REQUIREMENTS SERVICE
AT SECONDARY VOLTAGE
(Continued)

Customer shall discontinue parallel operation when requested by Chugach, in accordance with prudent utility practice, for the reasons stated in Section 504 of Chugach's Interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVA. During any such period of discontinuation, Chugach shall be obligated to serve customer's entire load. Chugach shall not use the provision of additional service due to such discontinuation as a basis for applying demand charge in Condition 2.a or 2.b.

3. Upon completion of Section 207, procedure E, of Chugach's Interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVa, or a later date agreed to by the parties, Chugach will serve the requirements of the customer, net of the power provided by the customer's generation, but the maximum demands recorded prior to the initial commencement of the operation of the customer's generation will be disregarded for purposes of applying the demand charge Condition 2.b.
4. All energy and per kWh charges shall be applied to all kWh supplied by Chugach during the billing period.
5. Service is provided subject to Chugach's rules and regulations.
6. The maximum demand will be measured by a meter or indicator furnished and installed by Chugach on a meter base furnished and installed by the customer.
7. The customer will make a reasonable effort to maintain unity power factor. Demand charges will be adjusted for customers with 50 kW or more of measured demand to correct for average power factors lower than 90% and may be similarly adjusted for other customers as Chugach deems necessary. Such adjustments will be made by increasing the measured demand 1% for each 1% by which the average power factor is less than 90% lagging.
8. Customer's generation must at all times comply with all applicable provisions of Chugach's Interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVa and preliminary and final letters of agreement entered into pursuant to Sections 206 and 207.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 28
NET REQUIREMENTS SERVICE
AT SECONDARY VOLTAGE
(Continued)

9. Customer shall use the electric output of customer's generation only to serve part of customer's electric loads, and shall not sell or otherwise provide electric capacity or energy to others. Absent prior approval by Chugach, electric output from customer's generation shall not flow into Chugach's electric system and Chugach may require customer, at customer's expense, to install equipment and/or comply with operational procedures as Chugach reasonably determines is necessary to prevent such flows into Chugach's electric system. Any such flows that result from an approved installation that meets the applicable requirements of Chugach's Interconnection Standards and Institute of Electrical Engineering (IEEE) standards are allowed.

Fuel and Purchased Power Cost Adjustment: The energy charge of the foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power, as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 29
NET REQUIREMENTS SERVICE
AT PRIMARY VOLTAGE

Applicable to:

Any customer that is otherwise eligible for service under, and satisfies the conditions of, Schedule 23 and that is partly served by on-site generation owned by the customer, where such generation has a nameplate capacity greater than 25 kW but not greater than 5,000 kW, and completed all procedures in Section 207 of Chugach's Interconnection and Operating Requirements for Non-Utility Generation up to 5,000 kVa.

Character of Service:

Three phase 60 Hertz alternating current at 4160Y/2400, 12470Y/7200, or 34500Y/19900 volts as available.

Monthly Rate:

Customer Charge:	\$619.42
Demand Charge:	\$43.10 per kW of billing demand
Energy Charge:	0.488 cents per kWh

Minimum Monthly Charge: The customer charge of \$619.42

Conditions:

1. Demand is determined by using the maximum average rate of energy supplied by Chugach for any 15 minute interval.
2. The billing demand shall be the greater of the following:
 - a. The recorded maximum demand supplied by Chugach for the month, or
 - b. Eighty percent (80%) of the maximum recorded demand supplied by Chugach during the preceding eleven (11) months, or
 - c. The contract demand, under a special contract.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 29
NET REQUIREMENTS SERVICE
AT PRIMARY VOLTAGE
(Continued)

Customer shall discontinue parallel operation when requested by Chugach, in accordance with prudent utility practice, for the reasons stated in Section 504 of Chugach's Interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVa. During any such period of discontinuation, Chugach shall be obligated to serve customer's entire load. Chugach shall not use the provision of additional service due to such discontinuation as a basis for applying demand charge in Condition 2.a or 2.b.

3. Upon completion of Section 207, procedure E, of Chugach's interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVa, or a later date agreed to by the parties, Chugach will serve the requirements of the customer, net of the power provided by the customer's generation, but the maximum demands recorded prior to the initial commencement of the operation of the customer's generation will be disregarded for purposes of applying the demand charge Condition 2.b.
4. All energy and per kWh charges shall be applied to all kWh supplied by Chugach during the billing period.
5. Service is provided subject to Chugach's rules and regulations.
6. The maximum demand will be measured by a meter or indicator furnished and installed by Chugach on a meter base furnished and installed by the customer.
7. The customer will make a reasonable effort to maintain unity power factor. Demand charges will be adjusted for customers with 50 kW or more of measured demand to correct for average power factors lower than 90% and may be similarly adjusted for other customers as Chugach deems necessary. Such adjustments will be made by increasing the measured demand 1% for each 1% by which the average power factor is less than 90% lagging.
8. The customer, at the customer's expense, shall furnish, install and maintain switches, transformers, regulators and other necessary equipment on the customer's premises.
9. Customer's generation must at all times comply with all applicable provisions of Chugach's Interconnection and Operating Requirements for Non-Utility Generation Up to 5,000 kVa and preliminary and final letters of agreement entered into pursuant to Sections 206 and 207.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 29
NET REQUIREMENTS SERVICE
AT PRIMARY VOLTAGE
(Continued)

10. Customer shall use the electric output of customer's generation only to serve part of customer's electric loads, and shall not sell or otherwise provide electric capacity or energy to others. Absent prior approval by Chugach, electric output from customer's generation shall not flow into Chugach's electric system and Chugach may require customer, at customer's expense, to install equipment and/or comply with operational procedures as Chugach reasonably determines is necessary to prevent such flows into Chugach's electric system. Any such flows that result from an approved installation that meets the applicable requirements of Chugach's Interconnection Standards and Institute of Electrical Engineering (IEEE) standards are allowed.

Fuel and Purchased Power Cost Adjustment: The energy charge of the foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power, as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

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Chugach Electric Association, Inc.

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REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULE 31, 32, AND 33
GENERAL SERVICE - SEASONAL
AT SECONDARY VOLTAGE

Applicable to:

Any class of service which meets all of the following criteria will be billed under Schedule 31, 32, or 33. Whether a customer is on Schedule 31, 32, or 33 depends upon the timing of the summer peak activity and the customer's specific billing cycle.

1. The customer has provided reasonable assurance that its loads will be consistent with criteria #2-6 listed below, and the customer has no billing history during the prior 11 months which is inconsistent with those criteria.
2. Annual demand peak occurring during the specified summer season.
3. Monthly peak demand of no greater than 20 kilowatts (kW) recorded during each month of the specified winter season.
4. Monthly peak demands of greater than 20 kilowatts (kW) recorded during at least three months of the specified summer season.
5. Peak demand for the specified winter season no greater than fifty percent (50%) of the peak demand for the specified summer season.
6. Metered at secondary voltage.

Character of Service:

Single or three phase 60 Hertz alternating current at 120/240, 120/208Y, 208Y/120, 240/120, or 480Y/277 volts as available.

The winter season and summer season shall be defined by the billing months identified in one of the following seasonal schedules:

Schedule 31	Winter Season:	October through April
	Summer Season:	May through September
Schedule 32	Winter Season:	November through May
	Summer Season:	June through October
Schedule 33	Winter Season:	November through April
	Summer Season:	May through October

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 31, 32, AND 33
GENERAL SERVICE - SEASONAL
AT SECONDARY VOLTAGE
(Continued)

Monthly Rate:

Winter Months

Customer Charge: \$92.61

Energy Charge: 11.878 cents per kWh

Minimum Monthly Charge: The customer charge of \$92.61

Summer Months

Customer Charge: \$92.61

Demand Charge: \$44.53 per kW of billing demand

Energy Charge: 0.498 cents per kWh

Minimum Month Charge: The customer charge of \$92.61

Conditions:

1. Demand is equal to the maximum average rate of energy use for any 15 minute interval.
2. The billing demand shall be the greatest of the following:
 - a. The recorded maximum demand for the month, or
 - b. Eighty percent (80%) of the maximum demand recorded during the preceding eleven (11) months, or
 - c. The contract demand, under a special contract for a customer with onsite generation.
3. Demand charges for self-generating customers may not be calculated based upon demand required to resynchronize and return the customer's self-generating output to parallel operation with the utility as measured during the one-hour period after power to a self-generating customer is restored following a forced outage that originates on the utility's side of the meter, and affects service to the self-generating customer.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULES 31, 32 AND 33
GENERAL SERVICE - SEASONAL
AT SECONDARY VOLTAGE
(Continued)

4. Chugach will monitor the level of metered demand during each of the billing periods during the specified winter season, and if Chugach should determine that demand exceeds 20 kilowatts (kW), then it will move customer billing from the Seasonal Rate Schedule to Rate Schedule 22 beginning with the next billing period. Chugach will provide the customer with written notification of the change in billing within five days of the meter read and no later than seven days before the next bill is rendered. Once moved from the Seasonal Rate Schedule, customer billing shall not be moved back to this schedule until such time that the customer reestablishes a demand pattern which meets the criteria on Tariff Sheet No. 94, or until Chugach determines that the customer's operating conditions have changed in a manner which would warrant such a change.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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STATE OF ALASKA
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Chugach Electric Association, Inc.

SCHEDULE 34, 35, AND 36
 GENERAL SERVICE - SEASONAL
 AT PRIMARY VOLTAGE

Applicable to:

Any class of service which meets all of the following criteria will be billed under Schedule 34, 35, or 36. Whether a customer is on Schedule 34, 35, or 36 depends upon the timing of the summer peak activity and the customer's specific billing cycle.

1. The customer has provided reasonable assurance that its loads will be consistent with criteria #2-6 listed below, and the customer has no billing history during the prior 11 months which is inconsistent with those criteria.
2. Annual demand peak occurring during the specified summer season.
3. Monthly peak demands of no greater than 20 kilowatts (kW) recorded during each month of the specified winter season.
4. Monthly peak demands of greater than 20 kilowatts (kW) recorded during at least three months of the specified summer season.
5. Peak demand for the specified winter season no greater than fifty percent (50%) of the peak demand for the specified summer season.
6. Metered at Primary voltage.

Character of Service:

Single or three phase 60 Hertz alternating current at 4160Y/2400, 12470Y/7200, or 34500Y/19900 volts as available.

The winter season and summer season shall be defined by the billing months identified in one of the following seasonal schedules:

Schedule 34	Winter Season:	October through April
	Summer Season:	May through September
Schedule 35	Winter Season:	November through May
	Summer Season:	June through October
Schedule 36	Winter Season:	November through April
	Summer Season:	May through October

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 34, 35, AND 36
GENERAL SERVICE - SEASONAL
AT PRIMARY VOLTAGE
(Continued)

Monthly Rate:

Winter Months

Customer Charge: \$619.42

Energy Charge: 9.355 cents per kWh

Minimum Monthly Charge: The customer charge of \$619.42

Summer Months

Customer Charge: \$619.42

Demand Charge: \$43.10 per kW of billing demand

Energy Charge: 0.488 cents per kWh

Minimum Month Charge: The customer charge of \$619.42

Conditions:

1. Demand is equal to the maximum average rate of energy use for any 15 minute interval.
2. The billing demand shall be the greatest of the following:
 - a. The recorded maximum demand for the month, or
 - b. Eighty percent (80%) of the maximum demand recorded during the preceding eleven (11) months, or
 - c. The contract demand, under a special contract for a customer with onsite generation.
3. Demand charges for self-generating customers may not be calculated based upon demand required to resynchronize and return the customer's self-generating output to parallel operation with the utility as measured during the one-hour period after power to a self-generating customer is restored following a forced outage that originates on the utility's side of the meter, and affects service to the self-generating customer.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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SCHEDULE 34, 35, AND 36
GENERAL SERVICE - SEASONAL
AT PRIMARY VOLTAGE
(Continued)

4. Chugach will monitor the level of metered demand during each of the billing periods during the specified winter season, and if Chugach should determine that demand exceeds 20 kilowatts (kW), then it will move customer billing from the Seasonal Rate Schedule to Rate Schedule 23 beginning with the next billing period. Chugach will provide the customer with written notification of the change in billing within five days of the meter read and no later than seven days before the next bill is rendered. Once moved from the Seasonal Rate Schedule, customer billing shall not be moved back to this schedule until such time that the customer reestablishes a demand pattern which meets the criteria on Tariff Sheet No. 97 or until Chugach determines that the customer's operating conditions have changed in a manner which would warrant such a change.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

**SCHEDULES 41-45
AREA LIGHTING SERVICE**

Applicable to:

Areas, other than public thoroughfares, provided with dusk-to-dawn lighting by pole mounted luminaries.

Character of Service:

Under these schedules Chugach will supply energy to and maintain an unmetered area lighting luminaire, owned by Chugach.

Monthly Rates:

<u>Schedule</u>	<u>Watts</u>	<u>Rate</u>
41	150	\$37.78
42	175	\$39.74
43	250	\$44.81
44	400	\$55.69
45	1000	\$101.61

Conditions:

1. The luminaire or area lighting system shall be equipped with automatic controls to turn the lights on at dusk and off at dawn.
2. These rates are based upon installation of luminaries on existing Chugach wood poles and connection to existing overhead service conductors. When new installations are requested, the cost shall be paid to Chugach as a contribution in aid-of-construction in accordance with Section 3.3. The customer may execute a contract to spread installation cost up to, but no more than, five (5) years. If the customer terminates service prior to payment completion, the balance remaining in his contract shall be due and payable upon service termination.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULES 41-45
AREA LIGHTING SERVICE
(Continued)

3. As of October 1, 1990, Chugach will no longer install new mercury vapor luminaries. Upon maintenance replacement, existing mercury vapor luminaries shall be replaced with the next lower wattage high pressure sodium luminaire and the customer shall be billed at the appropriate rate schedule.
4. A customer may elect to construct lighting facilities and Chugach shall connect and maintain such facilities following inspection and approval by Chugach for service under these schedules.

Fuel and Purchased Power Cost Adjustment: Charges set forth under "Monthly Rate", above are subject to adjustments to recover the cost of power, as described on Tariff Sheet 68 and 70.

For such and other purposes, the number of kilowatt hours to be incorporated in billing and other records, delivered monthly to each luminaire served hereunder, shall be determined to be the product of the fixture input wattage and the operating hours per month. The operating hours are determined monthly by reading a master photo-electric cell. Fixture input wattage is taken as 1.069 times the lamp wattage rating.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

**SCHEDULES 60-64
STREET LIGHTING SERVICE**

Applicable to:

Lighting by pole-mounted luminaries of public thorough-fares under the jurisdiction of governmental agencies.

Character of Service:

Under these schedules, Chugach will supply energy to and maintain an unmetered streetlight luminaire owned by Chugach.

Monthly Rates:

<u>Schedule</u>	<u>Watts</u>	<u>Rate</u>
60	150	\$37.78
61	175	\$39.74
62	250	\$44.81
63	400	\$55.69
64	1000	\$101.61

Conditions:

1. The luminaries or street lighting system shall be equipped with automatic controls to turn the lights on at dusk and off at dawn.
2. These rates are based upon installation of luminaries on existing Chugach wood poles and connection to existing overhead service conductors. When new installations are requested, the cost shall be paid to Chugach as a contribution in aid of construction in accordance with Section 3.3.
3. As of October 1, 1990, Chugach will no longer install new mercury vapor luminaries. Upon maintenance replacement, existing mercury vapor luminaries shall be replaced with the next lower wattage of high pressure sodium luminaire and the customer shall be billed at the appropriate rate schedule.
4. When the customer requires a change out from mercury vapor luminaries to sodium vapor luminaries, an amount equal to the cost of the change out and the new luminaire shall be paid to Chugach in advance of construction in accordance with tariff Section 3.4.

Fuel and Purchased Power Cost Adjustment: Charges set forth under "Monthly Rate", above are subject to adjustment to recover the Cost of Power, as described on Tariff Sheet 68 and 70.

For such and other purposes, the number of kilowatt hours to be incorporated in billing and other records, as delivered monthly to each luminaire served hereunder, shall be determined by the product of the fixture input wattage and the operating hours per month. The operating hours are determined monthly by reading a master photo-electric cell. Fixture input wattage is taken as 1.069 times the lamp wattage rating.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 500
COGENERATION AND SMALL POWER PRODUCTION
CONTRACT SERVICE

Applicable To:

Any person or entity who owns a qualifying facility (QF) within Chugach's service area. This schedule is limited to cogeneration facilities or small power production facilities with a capacity of 100 KW or less and is pursuant to the provisions of the contract signed by the qualifying facility. This schedule is not applicable to breakdown, standby or resale electric service.

Character of Service:

Single or Three-Phase 60 Hertz alternating current at the voltage and phase of Chugach's established distribution system most available to the location of the qualifying facility.

Monthly Rate:

The basic charge for electric service to the qualifying facility as specified in the applicable Chugach tariff.

Rates For Purchase of Energy:

The rates which Chugach will pay for energy supplied to it by the qualifying facility are the estimated average avoided costs (exclusive of the Cost of Power Balance Amount) filed with the Regulatory Commission of Alaska. The following rate for purchase of energy will change concurrently with the power cost adjustment revisions.

The avoided cost for determining the energy rate is calculated as follows:

- | | |
|---|----------------------|
| (1) Estimated fuel expense, variable operation and maintenance expenses and the energy portion of purchased-power expense for the ensuing quarter beginning 10/1/2020 | <u>\$9,131,275</u> |
| (2) Estimated kWh Sales for the ensuing quarter beginning 10/1/2020 | <u>245,711,056</u> |
| (3) Energy Power Rate [(1)/(2)] | <u>\$0.03716/kWh</u> |

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Conditions:

The qualifying facility will be required to enter into a written Special Contract with Chugach prior to interconnection of Chugach and qualifying facilities. This Special Contract shall contain all applicable terms and conditions which must be met and complied with by the qualifying facility. The Special Contract will be subject to the approval of the Regulatory Commission of Alaska.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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SCHEDULE 600
ECONOMY ENERGY SERVICE FOR RESALE

Applicable to:

Any utility signatory to the Alaska Intertie Agreement having generation capacity readily available to assume its load upon termination of the transaction.

Character of Service:

Chugach will schedule delivery of economy energy at its Plant 2 115KV Bus in accordance with the Alaska Intertie operating procedures. Sales of economy energy are interruptible upon Chugach's sole discretion.

Conditions of Service:

Transactions of economy energy are on a "when, as and if" available from Chugach's generating resources to purchaser to enable the reduction of output from the purchasing utility's available generating resources.

Chugach may supply energy up to the capacity of the power source or fuel available for such supply, subject to the judgment of Chugach that such supply of energy will not impair or jeopardize service to other customers, including other electric systems.

Delivery may be terminated by Chugach upon reasonable notice to the purchaser.

For the purposes of spinning reserve determinations, economy energy shall be considered to have been generated on the purchaser's system.

Price Determination:

- A. Purchaser's Decremental Costs include the cost of fuel, operating labor and maintenance which would have been incurred to generate the next unit of energy required at the time of transaction and which is avoided by the purchase of economy energy from Chugach. Decremental costs include the cost avoided by

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

start up and operation of a generating unit or units. The decremental cost of a unit to be shut down as a result of the transaction is the average cost of power during the period of the transactions if no economy energy was transferred. The decremental costs per megawatt hour for any particular transaction shall be the total of such costs divided by the megawatt hours scheduled for receipt. In situations where the purchaser would have incurred replacement fuel costs which are higher than the costs of an existing fuel supply, replacement costs shall be utilized.

- B. Chugach's Incremental Costs include the cost of fuel, operating labor and maintenance, and the costs of additional transmission system losses to generate and deliver to Plant 2. Incremental costs also include the cost of starting and operating any generating unit which is required as a result of supplying such energy. The incremental cost per megawatt hour for any particular transaction shall be the total of such costs divided by the megawatt hours scheduled for delivery. In situations where Chugach will incur replacement fuel costs which are higher than the cost of its existing fuel supply, replacement costs shall be utilized.
- C. Wheeling Costs are the sum of any transmission service charges paid by the purchaser for delivery over the Alaska Intertie or intervening utility systems.

The Margin shall be one half of the quantity of: Purchaser's Decremental Cost (A) minus Incremental Cost (B) minus Wheeling Costs (C). A different amount may be agreed upon prior to the transaction; however, the negotiated price must be within the range limited by producer's incremental cost and purchaser's decremental cost.

Margin = $[1/2 (A-B-C)]$, unless a different value is negotiated as described above.

Billing:

Economy Energy transactions will be billed monthly and will be the sum of Chugach's Incremental cost per MWH plus margin multiplied against the MWH of scheduled delivery.

Bills will be increased 1% per month on amounts unpaid after 25 calendar days from the date the bill is rendered.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 700
INTERRUPTIBLE SERVICE - FORT RICHARDSON
AT PRIMARY VOLTAGE

Applicable to:

Fort Richardson, a U.S. Army installation, solely for the purpose of wholesale interruptible power sales.

Character of Service:

Three phase 60 Hertz alternating current at 34500Y/19900 volts.

Monthly Rate:

Energy Charge: 7.245 cents per kWh

Minimum Monthly Charge: None

Conditions:

1. This service shall be fully interruptible at Chugach's discretion. Fort Richardson shall provide its own firm capacity in case of interruption.
2. Fort Richardson shall maintain a minimum of 90% power factor while taking service from Chugach. If Fort Richardson fails to maintain this power factor in any given billing period, a power factor penalty of .005 cents per kilowatt-hour shall be assessed for that billing period.
3. Fort Richardson shall coordinate any installation or settings of load shedding equipment affecting this service with Chugach.
4. Rates for this interruptible service shall be based upon direct costs and the fully allocated cost of service excluding demand-allocated costs. Rates established under this rate schedule may be modified only upon the filing of a general rate increase by Chugach.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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SCHEDULE 700
INTERRUPTIBLE SERVICE - FORT RICHARDSON
AT PRIMARY VOLTAGE
(Continued)

5. Upon reaching annual kWh sales of 7,454,650 (the amount required for the recovery of annual capital costs approved in TA 206-121), Fort Richardson may elect to be billed at rates based upon the same determination utilized for economy energy transactions as described on Chugach's Tariff Sheet No. 105.
6. If, in response to a specific request to do so by the customer, Chugach starts an idle turbine for the purpose of serving the customer's load, the customer will be required to pay, in addition to the Energy Charge specified above, the actual cost of starting the turbine. Prior to starting the turbine, Chugach will notify the customer of the start cost and confirm the customer's request to start the turbine.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 750
INTERRUPTIBLE SERVICE - ELMENDORF
AT PRIMARY VOLTAGE

Applicable to:

Elmendorf, a U.S. Air Force installation, solely for the purpose of interruptible bulk power sales.

Character of Service:

Three phase 60 Hertz alternating current at 34500Y/19900 volts.

Monthly Rate:

Energy Charge: 8.428 cents per kWh

Minimum Monthly Charge: None

Conditions:

1. This service shall be fully interruptible at Chugach's discretion. Elmendorf shall provide its own firm capacity in case of interruption.
2. Elmendorf shall coordinate any installation or settings of load shedding equipment affecting this service with Chugach.
3. If, in response to a specific request to do so by the customer, Chugach starts an idle turbine for the purpose of serving the customer's load, the customer will be required to pay, in addition to the Energy Charge specified above, the actual cost of starting the turbine. Prior to starting the turbine, Chugach will notify the customer of the start cost and confirm the customer's request to start the turbine.

Fuel and Purchased Power Cost Adjustment: The foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power, as described on Tariff Sheet Numbers 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 760
LIMITED ALL REQUIREMENTS SERVICE AT PRIMARY VOLTAGE

Applicable to:

Any Customer to whom Chugach is authorized to provide service but is not obligated to provide service (except pursuant to Schedule 700, 750, 760, 770, or 780) and whose peak load in any 12 month period is at least 10 MW. Availability of this service may be terminated by the utility by giving twelve (12) months' advance written notice to the authorized representatives of all customers then taking service and prompt written notice to all persons with pending applications for service under this schedule 760. Copies of such notices shall also be provided to the Regulatory Commission of Alaska.

Character of Service:

Three phase 60 Hertz alternating current at 34500Y/19900 volts.

Monthly Rate:

Customer Charge: ¹	\$668.42
Demand Charge:	\$45.43 per kW of Billing Demand
Energy Charge:	0.488 cents per kWh

Minimum Monthly Charge: The customer charge of \$688.42¹

Definitions:

1. Metered Demand is the maximum average rate of energy use for any 15 minute interval in the billing period.

¹ If the customer is taking service under more than one rate schedule at a single meter, only one customer charge shall apply

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Chugach Electric Association, Inc.

SCHEDULE 760
(Continued)

2. Billing Demand is the greater of the following:
 - a. The recorded maximum demand for the month, or
 - b. 70% of the highest Metered Demand recorded during the preceding eleven (11) months.

Conditions:

1. Chugach may require the customer to enter into a special contract with Chugach that specifies the term of Service and the parties' respective rights upon termination of service. Any such special contract will not become effective until approved by the Regulatory Commission of Alaska ("RCA").
2. Service is for 100% of the customer's requirements. All power generated by the customer's generation facilities must be sold either to the utility or to a third party to whom the power may be delivered. In providing service pursuant to this Rate Schedule 760, Chugach is not committed to purchase power from the customer or to wheel such power to any third party. Any purchase or wheeling arrangements between Chugach and the customer related to power generated by the customer's generation facilities will be by mutually acceptable contract and independent of this Rate Schedule.
3. Operating Reserves: The customer will be responsible for all billing demands arising as a consequence of forced outages of the customer's generation facilities, *provided that* the customer and Chugach may, by mutual agreement, enter into an operating reserve sharing arrangement which will relieve the customer of responsibility for billing demands arising as a consequence of the initial 2 hours of any forced outage or failure of a supplier other than Chugach to deliver power in consideration of which the customer shall provide Operating Reserves to Chugach meeting the following conditions:
 - a. The customer and Chugach must be interconnected in a manner which, in the sole opinion of Chugach, will make it technically feasible for the customer to supply operating reserves to Chugach.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 760
(Continued)

- b. The customer must supply to Chugach operating reserves, as defined in ADDENDUM NO. 1 TO THE ALASKA INTERTIE AGREEMENT dated December 23, 1985 and, in particular, SECTIONS A-1.1 *et seq.*, B-2.1 *et seq.*, and B-2.2 *et seq.* which provisions are, by this reference, incorporated herein and made a part of this rate schedule, in an amount that constitutes the same percentage of the customer's generation output as Chugach's operating reserve obligation is of its generation output.
4. The customer may terminate its service under this rate schedule by giving 30 days' advance written notice to Chugach. However, service under Schedule 760 may not be resumed within 12 months of termination by the customer.

Fuel and Purchased Power Cost Adjustment: The energy charge of the foregoing monthly rate is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 770
PARTIAL REQUIREMENTS SERVICE AT PRIMARY VOLTAGE

Applicable to:

Any customer to whom Chugach is authorized to provide service but is not obligated to provide service (except pursuant to Schedule 700, 750, 760, 770, or 780) and whose peak load in any 12 month period is at least 10 MW. Availability of this service may be terminated by the utility by giving twelve (12) months' advance written notice to the authorized representatives of all customers then taking service and prompt written notice to all persons with pending applications for service under this Schedule 770. Copies of such notices shall also be provided to the Regulatory Commission of Alaska.

Character of Service:

Three phase 60 Hertz alternating current at available transmission or subtransmission voltage (34500Y/19900 volts or above).

Monthly Rate:

Customer Charge: ¹	\$668.42
Baseload Demand Charge:	\$39.66 per kW of Baseload Demand
Peaking Demand Charge:	\$39.66 per kW of Peaking Demand
Energy Charge:	0.488 cents per kWh

Minimum Monthly Charge: The customer charge of \$668.42 plus the product of Baseload Demand multiplied by the Baseload Demand Charge specified above.¹

¹ If the customer is taking service under more than one rate schedule at a single meter, only one customer charge shall apply.

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REGULATORY COMMISSION OF ALASKA

Chugach Electric Association, Inc.

SCHEDULE 770
(Continued)

Definitions:

1. Metered Total Demand is the maximum average rate of energy use measured over any 15 minute interval during the applicable billing month.
2. Billing Total Demand for any billing month is the greater of (1) Metered Total Demand or (2) 70% of the highest Metered Total Demand recorded during the previous 11 billing months.
3. Baseload Demand is the demand level designated by the customer as Baseload Demand pursuant to paragraph 2 of the Conditions set forth below.
4. Peaking Demand for any billing month is the arithmetic difference derived by subtracting Baseload Demand from Billing Total Demand for such month, or zero, whichever is greater.

Conditions:

1. Chugach may require the customer to enter into a special contract with Chugach that specifies the term of Service and the parties' respective rights upon termination of service. Any such special contract will not become effective until approved by the Regulatory Commission of Alaska ("RCA").
2. The customer must apply for service on a form to be provided by the utility, and in such application, designate the Baseload Demand under this Rate Schedule. The customer may modify the Baseload Demand one time in any 12 month period by providing written notice to Chugach 30 days prior to the effective date of the change. The Baseload Demand may be modified more than one time in a 12 month period if the modification is mutually agreed upon and has no adverse effect on Chugach or its other customers.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 770
(Continued)

3. The customer may meet its requirements in excess of Baseload Demand through any combination of power purchases from non utility power suppliers and utilities which are authorized by the RCA to make such sales, and power generated by its own facilities. The customer shall provide Chugach with a schedule of its planned generation and purchases from suppliers other than Chugach for each hour of the following day no later than 12:00 noon each day. The customer shall promptly notify Chugach of any changes to such schedule and, except in an emergency, shall not change such schedule for any hour later than 15 minutes prior to the start of that hour.
4. In providing service pursuant to this Rate Schedule, Chugach is not committed to wheel power from any third party to the customer. Any wheeling or ancillary service arrangements between Chugach and the customer related to power purchased by the customer from third-party generation facilities will be by mutually acceptable contract, which must be approved by the RCA prior to taking effect, and independent of this Rate Schedule. The customer will be solely responsible for arranging provision of any wheeling or other services related to such purchase.
5. Operating Reserves: The customer will be responsible for all billing demands arising as a consequence of forced outages of the customer's generation facilities or of failures of power suppliers other than Chugach to deliver power, *provided that* the customer and Chugach may, by mutual agreement, enter into an operating reserve sharing arrangement which will relieve the customer of responsibility for billing demands arising as a consequence of the initial 2 hours of any forced outage or failure of a supplier other than Chugach to deliver power, in consideration of which the customer shall provide Operating Reserves to Chugach meeting the following conditions:
 - a. The customer and Chugach must be interconnected in a manner which, in the sole opinion of Chugach, will make it technically feasible for the customer to supply operating reserves to Chugach.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

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Chugach Electric Association, Inc.

SCHEDULE 770
(Continued)

- b. The customer must supply to Chugach operating reserves, as defined in ADDENDUM NO. 1 TO THE ALASKA INTERTIE AGREEMENT dated December 23, 1985 and, in particular, SECTIONS A-1.1 *et seq.*, B-2.1 *et seq.*, and B-2.2 *et seq.* which provisions are, by this reference, incorporated herein and made a part of this rate schedule, in an amount that constitutes the same percentage of the customer's generation output as Chugach's operating reserve obligation is of its generation output.
7. The customer may terminate its service under this rate schedule by giving 30 days' written notice to Chugach. However, service under Schedule 770 may not be resumed within 12 months of termination by the customer.

Fuel and Purchased Power Cost Adjustment: The Energy Charge is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Chugach Electric Association, Inc.

SCHEDULE 780
SEASONAL REPLACEMENT SERVICE AT PRIMARY VOLTAGE

Applicable to:

Any customer to whom Chugach is authorized to provide service but is not obligated to provide service (except pursuant to Schedule 700, 750, 760, 770, or 780), and whose peak load in any 12 month period is at least 10 MW, for the purpose of replacing customer owned generation units during maintenance outages during the Summer Season, May through October. Availability of this service may be terminated by the utility by giving twelve (12) months' advance written notice to all customers who are then taking service or whose applications for service pursuant to Condition No. 2 below have been accepted by the utility, and prompt written notice to all persons with pending applications for service, under this Schedule 780. Copies of such notices shall also be provided to the Regulatory Commission of Alaska.

Character of Service:

Three phase 60 Hertz alternating current at available transmission or subtransmission voltage (34500Y/19900 volts or above).

Monthly Rate:

Customer Charge:¹ \$668.42

Replacement Capacity Charge: \$39.66 per kW of Replacement Capacity

Excess Demand Charge: The Peaking Demand Charge under Rate Schedule 770 then in effect

Energy Charge: 0.488 cents per kWh

Minimum Monthly Charge: The customer charge of \$668.42 plus the Product of Replacement Capacity multiplied By the Replacement Capacity Charge specified above.¹

¹ If the customer is taking service under more than one rate schedule at a single meter, only one customer charge shall apply.

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Chugach Electric Association, Inc.

SCHEDULE 780
(Continued)

Definitions:

1. Metered Total Demand is the maximum average rate of energy use measured over any 15 minute interval during the applicable billing month.
2. Billing Total Demand for any month is the greater of (1) Metered Total Demand or (2) Replacement Capacity.
3. Replacement Capacity is the demand level designated by the customer as Replacement Capacity pursuant to paragraph 2 of the Conditions set forth below.
4. Excess Demand is equal to Billing Total Demand less Replacement Capacity, or zero, whichever is greater.

Conditions:

1. Chugach may require the customer to enter into a special contract with Chugach that specifies the term of service and the parties' respective rights upon termination of service. Any such special contract will not become effective until approved by the Regulatory Commission of Alaska ("RCA").
2. The customer must apply for service on a form to be provided by the utility, and in such application, designate the Replacement Capacity under this Rate Schedule. Replacement Capacity must be designated for a period of not less than 1 month and not more than 3 months, and no part of the period may fall outside of the May through October summer season. Chugach may accept or reject the customer's designation of Replacement Capacity and will notify the customer of its decision to accept or reject within 7 days of receiving the customer's application. If Chugach accepts the customer's designation, Chugach shall provide and the customer shall

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Chugach Electric Association, Inc.

SCHEDULE 780
(Continued)

purchase the designated Replacement Capacity pursuant to this rate schedule. The customer may unilaterally reduce the Replacement Capacity one time in any 12 month period by providing 30 days' prior written notice to Chugach. The customer may designate multiple purchases of Replacement Capacity, which Chugach may accept or reject independently of each other.

3. The customer may meet its requirements in excess of the Replacement Capacity through any combination of power purchases from non utility power suppliers and utilities which are authorized by the RCA to make such sales, and power generated by its own facilities. The customer shall provide Chugach with a schedule of its planned generation and purchases from suppliers other than Chugach for each hour of the following day no later than 12:00 noon each day. The customer shall promptly notify Chugach of any changes to such schedule and, except in an emergency, shall not change such schedule for any hour later than 15 minutes prior to the start of that hour.
4. In providing service pursuant to this Rate Schedule, Chugach is not committed to wheel power from any third party to the customer. Any wheeling or ancillary service arrangements between Chugach and the customer related to power purchased by customer from third-party generation facilities will be by mutually acceptable contract, which must be approved by the RCA prior to taking effect, and independent of this Rate Schedule. The customer will be solely responsible for arranging provision of any wheeling or other services related to such purchase.
5. Operating Reserves: The customer will be responsible for all billing demands arising as a consequence of forced outages of the customer's generation facilities or of failures of power suppliers other than Chugach to deliver power, *provided that* the customer and Chugach may, by mutual agreement, enter into an operating reserve sharing arrangement which will relieve the customer of responsibility for billing demands arising as a consequence of the initial 2 hours of any forced outage or failure of a supplier other than Chugach to deliver power in consideration of which the

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Chugach Electric Association, Inc.

SCHEDULE 780
(Continued)

customer shall provide Operating Reserves to Chugach meeting the following conditions:

- a. The customer and Chugach must be interconnected in a manner which, in the sole opinion of Chugach, will make it technically feasible for the customer to supply operating reserves to Chugach.
- b. The customer must supply to Chugach operating reserves, as defined in ADDENDUM NO. 1 TO THE ALASKA INTERTIE AGREEMENT Dated December 23, 1985 and, in particular, SECTIONS A-1.1 *et seq.*, B-2.1 *et seq.*, and B-2.2 *et seq.* which provisions are, by this reference, incorporated herein and made a part of this rate schedule, in an amount that constitutes the same percentage of its generation output as Chugach's operating reserve obligation constitutes of Chugach's generation output.

Fuel and Purchased Power Cost Adjustment: The Energy Charge is subject to adjustment on a kilowatt hour basis to recover the cost of power as described on Tariff Sheet Number 68 and 70.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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Appendix A

Interconnection and Operating Requirements for Non-Utility Generation
Up to 5,000 kVa

(Sections 111-114 Revised September, 2016)

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

Issued by:

Effective: **December 23, 2020**

Chugach Electric Association, Inc.
P.O. Box 196300 Anchorage, Alaska 99519-6300

Interconnection and Operating
Requirements
For Non-Utility Generation
Up to 5,000 kVA

2010 EDITION

<http://www.chugachelectric.com>

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**MEETING ANCHORAGE'S ENERGY CHALLENGES
WITH EFFICIENCY AND NEW TECHNOLOGY**

CHUGACH ELECTRIC ASSOCIATION, INC.

Interconnection and Operating Requirements For Non-Utility Generation Up to 5,000 kVA

2010 EDITION

Municipality of Anchorage

FOREWARD

Interconnection of non-utility generating equipment with Chugach's electric power system involves many complex technical and operational issues. Non-utility owned generators span a wide range of sizes and electrical characteristics, and electrical distribution system design varies from that required to serve the residential customer to that needed to serve the large commercial customer. With so many variations possible, it is very challenging to create an interconnection standard that fits all generation interconnection situations.

In establishing a non-utility generation interconnection standard, two important issues that must be addressed are safety and reliability.

The first and most important issue is safety of the general public and of Chugach's employees working on the electrical systems. This standard establishes the technical requirements that must be met to ensure the safety of the general public and of Chugach's employees. Typically, designing an interconnection system for the safety of the general public will also provide protection for the interconnected equipment.

The second issue is reliability; the non-utility generation system must be designed and interconnected in such a way that system reliability and service quality for all customers connected to Chugach's electric power system are not compromised.

Chugach will strive to maintain quality of service and the safety of the general public, customers, and employees, while facilitating interconnection of non-utility generation equipment where possible.

Lee D. Thibert
Chief Executive Officer
Chugach Electric Association, Inc.

CHUGACH ELECTRIC ASSOCIATION, INC. DEPARTMENT DIRECTORY

5601 Electron Dr.
Anchorage, Alaska 99518
(907) 563-7494 (24 hrs)
(800) 478-7494

Line Extension Coordinator (new service applications)
7:30 a.m. to 4:00 p.m., Monday through Friday
(907) 762-4631

Customer Service Division (billing and account information)
8:00 a.m. to 5:30 p.m., Monday through Friday
(907) 563-7366

Engineering Division
7:00 a.m. to 3:30 p.m., Monday through Friday
(907) 762-4453

Operations Division
7:00 a.m. to 3:30 p.m., Monday through Friday
(907) 762-7655

Metering Section
7:00 a.m. to 3:30 p.m., Monday through Friday
(907) 762-7655

ADDITIONAL IMPORTANT TELEPHONE NUMBERS

Municipality of Anchorage, Development Services, Building Safety
General Information and Permits 343-8347
To request an inspection for a project with a permit 343-8300
To fax a request for an inspection for a project with a permit 249-7777
Inspection Help Line 343-7962
Lead Electrical Inspector 343-8316

Locate Call Center of Alaska, Inc.
Anchorage Area (907) 278-3121
Statewide (800) 478-3121

Chugach North District Service Area

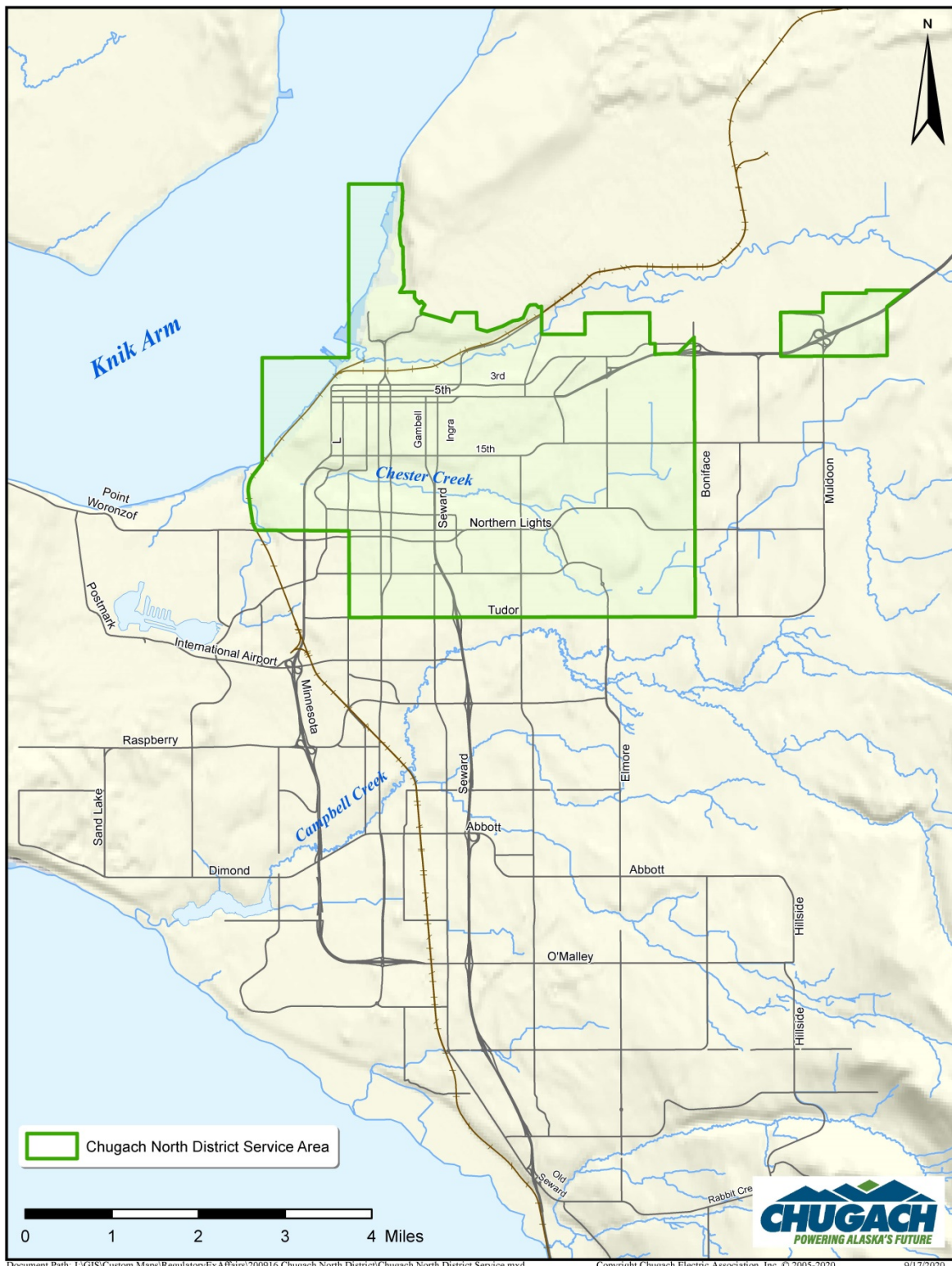


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Section 100 - General Information**101 Format and Organization**

Chugach recognizes the desire of some customers to generate their own electricity on-site while maintaining an electrical connection with the Chugach electric power system. Other customers may want to construct and operate non-utility generation facilities and connect it to the area electric power system. These requirements contain the design parameters, equipment specifications, and technical operating parameters for interconnecting non-utility generation to the Chugach electric power system. Summaries for each section of this document are presented below.

General Information - Section 100

Section 100 provides an Overview of Chugach's operating policy regarding proposals for interconnecting non-utility generation with the Chugach electric power system. This section contains key information regarding operational concepts and characteristics for both separate operating and parallel operating systems. To help customers understand Chugach's classification system, this section also provides general descriptions and definitions of the different classes of interconnected non-utility generation, as defined for the purposes of these requirements.

Process and Application Procedures - Section 200

Section 200 sets forth the step-by-step process through which specific requirements for safe and reliable interconnection is determined and implemented. While each proposal will be unique in its characteristics, this section provides the applicant with an understanding of how applications are processed, how specific interconnection requirements are assessed, the process by which projects are coordinated with Chugach, and the means to obtain authorization for interconnected operation. Applications for interconnection are included as appendices to these requirements.

System Design Requirements - Section 300

Section 300 describes necessary information on design documentation as well as required drawings for interconnecting non-utility generation. Also, included is information regarding protective systems, Chugach electric power system information, and general information on induction generators and on power converter systems. Finally, Section 300 provides information on national and local standards, codes, and compliance requirements.

Generation and Interconnection Equipment Specifications - Section 400

Section 400 addresses equipment specifications and design requirements for interconnecting non-utility generation facilities with the Chugach electric power system. Included in Section 400 are specific requirements for each class non-utility generating facilities.

Generation and Interconnection Operating Requirements - Section 500

Section 500 contains information on general operating requirements, the specifics of parallel operation, and islanded operations. Also addressed in Section 500 are details regarding insurance, voltage levels, voltage regulation, reactive power, harmonic distortion, system protection coordination, functional testing, and equipment maintenance.

Section 100 - General Information**102 Operational Policy for Interconnected Non-Utility Generation**

Chugach's policy is to assist its customers with the installation and operation of non-utility generation resources intended to operate in parallel with the Chugach electric power system, provided this can be done without adverse effects to Chugach's other customers, personnel, equipment or system operations.

The purpose of Chugach's interconnection procedures is to provide a thorough but expedient method by which the applicant can be authorized to safely and reliably interconnect with the Chugach electric power system.

In these requirements, interconnection is defined as the electrical connection of non-utility generation facilities with the Chugach electric power system, either directly to Chugach's facilities, or through the customer's load. As used in this document, non-utility generation is defined as any electrical generation source not owned or operated by Chugach. Non-utility generating facilities can be classified as either separate or parallel operating systems. Separate operation denotes operating generation without the capability of sending power to, or receiving power from the Chugach system. Parallel operation is the condition where non-utility generation operates while electrically connected to the Chugach system; under this condition, electric power can flow either from the Chugach system to the non-utility facility or vice versa.

Within these requirements, the term "producer" is used to refer to the owner(s) of non-utility generating facilities, or agents acting on their behalf, who have been authorized by Chugach to interconnect and operate generation in parallel with the Chugach electric power system. Also in these requirements, an "applicant" is defined as an individual or party who has applied for the interconnection of non-utility generation with the Chugach electric power system.

The operation of non-utility generation in parallel with the electrical supply grid poses important safety concerns for Chugach personnel and equipment, and poses safety and reliability concerns for Chugach's customers and the general public. Accordingly, any interconnected non-utility generating facility must meet all applicable federal, state, and local safety codes and regulations, in addition to the specific details contained in these requirements. Chugach strongly recommends (and in some cases, may require) that those applying for interconnection obtain the services of an engineering professional, expert in the design of wiring and protection systems, including control and protection systems for generating equipment interconnected with electric grids.

Electrical distribution systems are inherently complex; each proposal to interconnect to the system will be unique in geographic location, operational characteristics, and impact to the electrical grid. All proposals must therefore be analyzed to determine the specific technical operating criteria and utility interface requirements.

Chugach requires general liability insurance for all non-utility generation facilities. Refer to Section 502 for specific details regarding insurance coverage. Proof of insurance is required before Chugach will authorize connection and operation of non-utility generating equipment.

Section 100 - General Information**103 Transfer of Ownership**

A producer's non-utility generation facility is transferrable to other parties only after Chugach has been notified and the party receiving the non-utility generation facility has executed a final letter of agreement with Chugach. If transfer of ownership takes place prior to execution of a letter of agreement with the party receiving ownership, the non-utility generating equipment will be disconnected from Chugach's electric power system.

104 Relocation of Non-Utility Generating Equipment

Once an applicant executes a final letter of agreement to operate non-utility generating equipment, authorization to operate that equipment only extends to the location or premises stated in the application. If a producer (owner) relocates non-utility generating equipment to another location or premises, a new application must be submitted and a subsequent final letter of agreement be executed prior to interconnecting with Chugach's electric power system.

105 Access to Producer's Premises

A properly identified employee of Chugach shall have access to the premises of the producer at all times. Except as required for the safe and efficient operation of its facilities, Chugach will endeavor to avoid accessing the producer's premises at unusual or disruptive times.

If a producer fails to provide required access, the producer will be notified of the denial of access and will be given time to remedy the access problem consistent with the nature of the problem (e.g. safety hazard, emergency, non-emergency, etc.). Failure to remedy the access problem within the time specified may result in disconnection of electric service until such time as access is restored.

The requirement for access to a producer's premises applies to all classes and subclasses of non-utility generation installations. Refer to the glossary on page 85 for the definition of "Access".

106 Separate Operation

The information contained in interconnection and operating requirements generally does not apply to "separate operating" non-utility generating systems. Typically, separate operating systems are small emergency generating units for residential use or certain uninterruptible power systems (UPS), which do not energize the Chugach system in their normal course of operation.

Within the context of these requirements, a "separate operating" system is defined as a generating system which has no capability to connect and operate in parallel with the Chugach system. Generally, a separate system is comprised of power generating equipment and switching apparatus located on the owner's site or property, which are designed and intended for use as an emergency, stand-by, or stand-alone power system. Chugach requires that these systems transfer load (either from the Chugach system to the customer's separate system, or vice-versa) via open-transition switching.

Section 100 - General Information

For separate systems, which utilize open-transition switching, the specifications in these requirements do not apply. Standards and specifications for such systems can be found in Chugach's Electric Service Requirements. Open-transition switching is accomplished by employing either an automatic or manual transfer switch which does not allow the customer's generation equipment to be electrically connected with the Chugach system (i.e., breaks contact with one source before the making contact with the other). Open-transition switching ensures that the customer's generation equipment will be electrically disconnected prior to transferring the customer's load to or from the Chugach supply and electrical system.

Most uninterruptible power supply (UPS) systems do not specifically meet the separate system criteria. However, if they are not capable of back feed into the Chugach system, they can be classified as a separate system. If back feed is possible for such a system, it must meet Chugach's requirements for parallel operation. If there is a question about whether the applicant has a separate system, Chugach will review the transfer scheme and advise as to whether it meets the open-transition requirements. This review may include approval of drawings and equipment specifications, as well as field inspection of the transfer equipment.

107 Parallel Operation

Parallel operation is defined as a condition where non-utility generation operates while electrically connected to the Chugach electric power system. Under this condition, electric power can flow from the Chugach system to the producer's facility or from the producer's facility into the Chugach system. In other words, bi-directional (two-way) power flow between the two systems is possible under this operating condition.

For the parallel operation of a non-utility generation facility, the interconnection must be implemented in such a way that system disturbances do not result in portions of the Chugach system becoming islanded with the producer's facility,

108 Islanding

Within the context of these requirements, islanded or islanding operation denotes the condition where the producer's generation energizes a portion of the Chugach electric power system that has become electrically separated from the rest of Chugach's system. For safety and quality reasons, no producer may island any portion of the Chugach system, unless given express approval and authorization by Chugach (see Section 504: Islanded Operations).

Significant concerns exist regarding the possible dangers to which Chugach personnel may be exposed under islanded conditions. Chugach's line crews must have the assurance that any section of the Chugach system is de-energized prior to work and will not be re-energized until there is confirmation that they are physically clear of the system. Under an islanded condition, Chugach cannot provide assurance to its personnel that all portions of the island are de-energized.

Another important concern is the responsibility Chugach has to deliver electrical service within the proper ranges (voltage, frequency, etc.) to its customers. If a portion of the Chugach system were to become islanded and energized by non-Chugach generation, Chugach would not be able to control the quality, safety, and integrity of the electrical service delivered to its customers.

Section 100 - General Information**109 Classification of Non-Utility Generation Installations**

In order to evaluate proposed interconnections to its electrical power system, Chugach has developed four (4) classes of non-utility generators identified as Class A, B, C, and D and a subclass for net-metered generators identified as Class A - NET. This classification system is based on the generators' potential to affect the grid and follows industry-accepted methodology. Criteria for classification includes the maximum capacity of the facility (output capacity in kVA), the type of generating system and its characteristics (synchronous generator, induction generator, power converter system, etc.), the stiffness ratio of the facility in relation to the Chugach electrical system, and system electrical characteristics at the point of interconnection.

Stiffness ratio is a measure used to determine the potential impact of non-utility generating equipment on the system at the point of interconnection. The stiffness ratio is the ratio of the available electric system fault current at the point of interconnection to the maximum rated current of the producer's facility. Used throughout the industry, this ratio indicates the capability of a particular generator to influence system voltages and operating characteristics. For any given point on the electric power system, the higher the ratio, the lower the probability that the producer may contribute to system disturbances or adversely affect nominal system voltage levels. Refer to IEEE Std. 1547.2-2008, Part 3.1.7 and 3.1.8 for details on stiffness ratio.

To obtain the minimum interconnection equipment requirements associated with a particular class of facility, please refer to the applicable requirements in Section 400.

110 Class A - NET Facilities

Non-utility generator installations of 25 kVA output or less, where the system stiffness ratio is at least 100, and which qualify under State of Alaska Net Metering Standards (3 AAC 50.900 - 50.949) and rule 10 of Chugach's effective tariff, are Class A - NET installations. Eligibility for the Class A - NET classification can be found in the State of Alaska Net Metering Standards, 3 AAC 50.920. Interconnection requirements for Class A - NET installations are typically the least difficult of all the classes.

In general, a Class A - NET installation is a small on-site power supply facility and is not expected to affect Chugach's primary electrical distribution feeder devices. Class A - NET installations are usually not capable of significantly altering local voltages on adjacent distribution facilities, and the relatively small capacity generators are not capable of supporting large islands on the primary electrical system.

Class A - NET installations may be connected to the producer's load(s) so that all, or a portion of the producer's non-utility generation equipment can serve the producer's load(s) which would normally be served by Chugach.

Section 100 - General Information**111 Class A Facilities**

Non-utility generator installations of 25 kVA output or less, where the system stiffness ratio is at least 100, are Class A installations. Interconnection requirements for Class A installations are typically the least difficult of all the classes.

In general, Class A installations are small on-site power supply applications and are not expected to affect Chugach primary electrical distribution feeder devices. Class A installations are usually not capable of significantly altering local voltages on adjacent distribution facilities, and the relatively small capacity generators are not capable of supporting large islands on the primary electrical system.

112 Class B Facilities

Non-utility generator installations from 25 kVA to 100 kVA, where the stiffness ratio is at least 50, are Class B installations.

As with Class A installations, the probability of interference with Chugach customers and electrical distribution system equipment is relatively low, but the risk is sufficient to warrant additional interconnection requirements. Class B installations generally do not significantly influence primary electrical feeder devices but can alter primary and/or secondary voltages.

113 Class C Facilities

Non-utility generator installations from 100 kVA to 1,000 kVA, where the stiffness ratio is at least 30, are Class C installations. The larger capacity of Class C facilities (relative to Classes A and B), and the consequent potential to island large sections of the Chugach electric system is of much greater concern. In addition, Class C installations can significantly influence primary feeder devices and operations.

(Revised September, 2016)

Section 100 - General Information**114 Class D Facilities**

Non-utility generator installations from 1,000 kVA to 5,000 kVA, where the stiffness ratio is at least 20, are Class D installations. Installations of this size and available fault contribution can present a major risk to system safety and operations. The effect on Chugach's system voltage and equipment, whether constant or transient, can be serious. Due to the capacity of Class D facilities, islanding is a major concern. Class D installations require detailed and careful system studies to determine the amount and degree of interconnection and interface requirements, as they are capable of having a major influence on the Chugach connecting feeder(s), adjacent feeders, and substations.

(Revised September, 2016)

Section 200 - Application Process**201 Objectives**

This portion of the interconnection requirements contains an overview of the process and procedures necessary to interconnect producer-owned generation with the Chugach system. It also provides both administrative and technical guidelines to assist the applicant in obtaining interconnection with the Chugach electrical system in an efficient and consistent manner.

A producer intending to operate generation in parallel with the Chugach system must complete an "Application for Non-Utility Generation." The time required to complete the application process generally depends on the complexity of the proposed project. The applicant must provide Chugach with a complete design package, so that Chugach may classify the generating system, review the interconnection facilities, and analyze the impact of the proposed interconnection on the Chugach system. Projects using previously submitted designs, which have been satisfactorily "type-tested", usually move through the process steps more quickly. Several of the process steps may be satisfied with an initial application, depending on the detail and completeness of the application and supporting documentation submitted by the applicant. However, proposed, type-tested systems do not eliminate the requirement that the applicant provide Chugach with a complete design package.

202 Process Review and Responsibilities

The following description of the process and application procedures is designed to help the applicant understand the information required and the steps necessary to enable Chugach to review the applicant's proposal and provide authorization for interconnection in a reasonable and expeditious manner.

203 Cost Reimbursement

Chugach will estimate its costs related to the applicant's proposed interconnection, excluding the cost of additional metering for net metering consumers. The applicant shall be responsible for full payment of the costs Chugach would not have incurred but for the applicant's interconnection.

Section 200 - Application Process**204 Step 1: Preliminary Coordination & Application**

Procedure	Description	Estimated Duration
A. Initial Communication	<p>The initial communication may be as brief and informal as a general inquiry via telephone, to a scheduled appointment with Chugach for general discussion and submittal of all initial application.</p> <p>To schedule an appointment, contact the Service Extension Coordinator in Chugach 's Engineering Division.</p>	The initial communication typically takes one (1) day.
B. Data Collection	<p>From the initial communication, or subsequent meetings with Chugach, the applicant should have a clear definition of the required technical data and information regarding the proposed interconnection. To help expedite application processing, Chugach will also provide guidance as to whether both the initial and final applications should be submitted before commencement of application processing.</p> <p>Please note that additional information may become required during Step 2: Application Processing. If required, Chugach will coordinate with the applicant, in an expedient manner, to resolve any additional information issues.</p>	Data collection duration is variable, depending on the project and/or class of the proposed facility.
C. Application Submittal and Review	<p>When the applicant files the completed application, Chugach will perform a brief review of the application to determine if any additional information is required.</p> <p>The applicant shall be responsible for payment of any processing fees, as determined by Chugach Engineering, to cover Chugach's administrative costs.</p> <p>Within five business days of receiving the application(s), Chugach will respond in writing, via letter or e-mail, to the applicant, noting receipt of the application. If no discrepancies are noted, application processing will begin upon receipt of processing fees from the applicant.</p>	Application submittal and review typically takes five (5) business days.

Section 200 - Application Process**205 Step 2: Application Processing**

Procedure	Description	Estimated Duration
A. Application Processing for Class A and B Facilities	Application processing generally involves: a) Payment of processing fees (see Step 1, C). b) Performance of system analyses and studies, as required, to assess specific interconnection requirements and system modifications; c) Determination of facility-specific operating parameters. d) Assessment of any specific requirements in addition to the general requirements outlined in the interconnection requirements.	Application processing for Class A and Class B facilities typically does not exceed thirty (30) calendar days.
B. Application Processing for Class C and D Facilities	Application processing generally involves: a) Payment of processing fees (see Step 1, C). b) Performance of system analyses and studies, as required, to assess specific interconnection requirements and system modifications; c) Determination of facility-specific operating parameters; d) Determination of specific telemetry and control requirements; e) Review and assessment of applicable code and standards issues associated with the proposed interconnection.	Application processing for Class C and Class D facilities typically does not exceed forty-two (42) calendar days.
C. Response to Application	Chugach will provide a written response regarding the proposed interconnection. This will include notice of any facility-specific interconnection requirements, and will address any outstanding issues or cost items, for which the applicant may be responsible.	Chugach's written response to the application typically does not exceed seven (7) calendar days after application processing is complete.

Section 200 - Application Process**206 Step 3: Interconnection Design Review & Coordination**

Procedure	Description	Estimated Duration
A. Submit a Draft of the Final Design	The applicant shall develop a draft of the final interconnection design based on the information in Chugach's Response to Application and submit it to Chugach for review and coordination to develop the final design.	Duration is variable and dependent upon the applicant.
B. Final Design Review and Coordination	<p>This procedure involves Chugach's review and coordination of the submitted final design.</p> <p>If system modifications are necessary to accommodate the proposed interconnection, a Chugach work order will be initiated to perform these modifications. A preliminary cost estimate will be provided to the applicant prior to finalization of the work order design.</p> <p>After Chugach approves the final interconnection design, a preliminary letter of agreement can be executed between the applicant and Chugach. Once a preliminary letter of agreement is signed, construction may proceed.</p>	Duration is variable and dependent upon the scope of the project.

Section 200 - Application Process**207 Step 4: Construction, Inspection, and Acceptance**

Procedure	Description	Estimated Duration
A. Preliminary Letter of Agreement	With Chugach's approval of the applicant's final design and written agreement that the applicant will bear all costs associated with Chugach system modifications, Chugach will authorize construction of the interconnection via a preliminary letter of agreement. This agreement will allow the applicant to proceed with construction and to perform subsequent testing to ensure that the interconnection is safe, adequate, and reliable.	Duration is variable and dependent upon both parties.
B. Construction and Final Inspection	The applicant may proceed with interconnection facility construction, coordinating with Chugach for periodic inspections, and final facility inspection. Periodic inspections (and final inspection) will be performed at the discretion of Chugach to ensure that the interconnection facilities meet the specifications of the approved final design.	Duration is variable and dependent upon both parties.
C. Final Acceptance and Cost Reconciliation	Following the completion of interconnection facility construction, Chugach will proceed with functional acceptance testing of the interconnection facilities, as necessary, to ensure that the protection system set points, synchronizing capabilities, and power quality are acceptable under the full range of facility operating characteristics. Prior to executing a final letter of agreement, the applicant shall reimburse Chugach for all costs associated with application processing, and/or system modification work orders.	Duration is variable and dependent upon both parties.
D. Proof of Insurance	The applicant shall provide Chugach with proof of general liability insurance.	Duration is dependent upon the applicant.
E. Final Letter of Agreement	With completion of a final letter of agreement and cost reconciliation, the final agreement allowing connection and operation of the facility may be executed between the applicant and Chugach.	Duration is variable and dependent upon both parties.

Section 300 - General System Design Requirements**301 Design Documentation and Information**

For Chugach review and reference purpose, the producer shall submit the following information and design documentation with the interconnection application(s) (Refer to Appendix A, Appendix B, or Appendix C: Applications for Interconnection). For smaller class facilities, some submittal requirements may be waived at Chugach's discretion. All of the producer's interconnection final design plans and drawings shall be sealed by an electrical engineer, registered and recognized as a Professional Engineer in the State of Alaska.

A. One-Line Diagram

This is an electrical drawing with sufficient detail to show the major elements of the facility electrical connections, interconnection and protective equipment, and point of interconnection to the Chugach electric power system. The diagram must include the following where applicable:

- Generating equipment
- Conductor types, sizes, and bus electrical ratings
- Apparatus KVA and voltage ratings
- Metering points and instrument transformers (as applicable)
- Interconnection transformer
- Relays and circuit breakers/interrupting devices
- Switchgear (as applicable)
- Utility device and map point at the point of interconnection

B. Three-Line Diagram (as required)

This electrical drawing shall represent all three phases and neutral connections of the interconnected facility circuits, showing potential transformer (PT) and current transformer (CT) ratios and details of their configuration, including relays, meters, and test switches.

C. Relay, Metering, and Telemetry Functional Drawing

This diagram shall indicate the functions of the individual relays, metering, and Telemetry equipment, if any. For smaller generator installations such as some Class A and Class A - NET facilities, the one-line diagram and the functional diagram may be combined.

Section 300 - General System Design Requirements**D. Paralleling Device Control Drawings**

These drawings shall show the conditions, relays, and instrument transformers that cause all switches and/or circuit breakers applied to the interconnecting facility to open or close. The source of power for each control and/or protective device shall be clearly indicated in the drawings. Control drawings for Class A and Class A - NET facilities may be incorporated in the one-line diagram.

E. Facility Grounding Drawings

These drawings shall indicate ground wire sizes, bonding, and connections, as well as the number, size, and type of electrodes, and spacing. The producer's grounding scheme shall conform to IEEE Std. 1547, Part 4.1.2: Integration with Area EPS Grounding.

In addition to the above, the producer shall provide to Chugach any additional design information or documents pertaining to the interconnected facility, as requested.

302 Protective Systems and Equipment

Control and protection design for facilities proposed to operate in parallel with the Chugach system must be approved by Chugach prior to approval for interconnection with the Chugach electric power system.

The specific design of the protection system depends on the generator type, size, and other site-specific considerations. The producer shall meet Chugach requirements, and all designs and equipment shall conform to the National Electrical Code, the National Electrical Safety Code, IEEE standards, and all federal, state, local, and municipal codes. Refer to Section 307 for a list of applicable nationally recognized standards.

When proposing protective devices for the protection of the Chugach system, the applicant shall submit a single-line drawing of this equipment to Chugach for approval of the interconnection protective functions and equipment (see Section 301: Design Documentation and Information). Any changes required by Chugach must be made prior to final acceptance, and Chugach must be provided with dated copies of the final drawings. **To eliminate unnecessary costs and delays, the final design should be submitted to, and approved by Chugach prior to ordering equipment and the commencement of construction.**

Chugach will approve only those portions of the producer's system designs, which apply to the interconnection with, and protection of, the Chugach system. Chugach may comment on other areas, which appear to be incorrect or deficient, but will not assume responsibility for the correctness of protection pertaining to the producer's system.

In order to gain approval for interconnected operation, at the completion of construction, the producer shall demonstrate to Chugach conformance to the testing specifications and requirements contained in IEEE Standards 1547 and 1547.1 for all protective and control systems associated with the producer's interconnection equipment. The producer shall provide documentation of test results, protective relay settings, and control system settings to Chugach.

Section 300 - General System Design Requirements**303 Chugach System Modifications**

Any modification to the Chugach electric grid, such as the installation of additional equipment, reconductoring of all or a portion of the connecting Chugach line, or reconfiguration of Chugach protection systems necessary to permit parallel operation with the Chugach electric distribution system, will be performed by Chugach.

Where such Chugach system modifications are required to allow interconnection of the producer's facilities, Chugach will perform these modifications, at the producer's expense, providing all necessary labor, materials, and equipment.

304 Standard System Voltages

Chugach's standard system voltages conform to ANSI C84.1 standards and are outlined as follows. All distribution circuits, both secondary and primary, are effectively grounded. Specific voltage requirements and limits for the producer's generating equipment are described in Section 5: Interconnected Operating Requirements.

- Distribution Secondary Voltages:
 - Single-phase, 120/240 volts, 3-wire
 - Single-phase, 240/480 volts, 3-wire
 - Three-phase, 120/208 volts, 4-wire, grounded wye
 - Three-phase, 277/480 volts, 4-wire, grounded wye
- Distribution Primary Voltages:
 - Single-phase, 7200 volts
 - Three-phase, 2,400/4,160 volts, 4-wire, grounded wye
 - Three-phase, 7,200/12,470 volts, 4-wire, grounded wye
 - Three-phase, 19,920/34,500 volts, 4-wire, grounded wye
- Transmission Voltages:
 - 34,500 volts, three-phase
 - 115,000 volts, three-phase

Section 300 - General System Design Requirements**305 Induction Generators**

Induction generators require varying amounts of reactive electric power (VARs) in order to produce real electric power (watts). Due to this consumption (or absorption) of VARs, induction generators inherently operate at leading power factors. The producer shall provide all reactive support or compensation required to maintain power factors within the limits specified in Section 509: Power Factor Requirements, when operating in parallel with the Chugach electric power system. Reactive support for required power factor correction may be provided by the producer's installation of Chugach approved reactive compensation devices, or through contractual agreement with Chugach to provide ancillary services to the producer.

306 Power Converter Systems

Reactive power supply requirements for converter systems are similar to those for induction generators, and the general guidelines discussed in Section 305 apply.

Chugach requires that power converter systems conform to the requirements contained in IEEE Standard 1547 and 1547.1, and that such systems for interconnected generation sources meet the recommended limits for current, voltage, and harmonic distortion contained in IEEE Std. 519, Sections 10 and 11. If the producer's converter system(s) is found to interfere with the Chugach electric grid, Chugach customers, or other power producers, the producer may be required to install adequate electrical filtering to bring the voltage and current outputs to acceptable levels. Converters that have been tested and certified by an independent laboratory, such as Underwriters' Laboratories (UL), to be non-islanding, and meet the recommended limits contained in IEEE Std. 519, Sections 10 and 11, may be interconnected to the Chugach system without modifications or farther certifications.

For units rated less than 100 kW, it is acceptable to have the frequency and voltage protective functions built into the electronics of the converter only if the set points of those functions meet IEEE Standard 1547 criteria, are tamperproof, and can be easily and reliably tested. Acceptability, conformance with IEEE 1547 criteria, and ease and reliability of testing will be determined by Chugach.

307 Compliance with Nationally Recognized Standards

Chugach requires that all non-utility generation capable of electrical connection to the Chugach electric power system comply with the applicable and pertinent sections of the following nationally recognized codes and standards:

- IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems
- IEEE 1547.1 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems
- IEEE 1547.2 Application Guide for IEEE 1547
- IEEE 1547.3 Guide for Monitoring, Information Exchange, and Control of Distributed Resources Interconnected with Electric Power Systems
- IEEE 929 Recommended Practice for Utility Interface of Photovoltaic (PV) Systems

Section 300 - General System Design Requirements

- IEEE 519 Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems
- UL 1741 Standard for Inverters, Converters, Controllers, and Interconnection System Equipment for use with Distributed Energy Resources

Compliance with UL 1741 for inverters, converters, controllers, and interconnection system equipment used with non-utility generators shall be by means of the manufacturer's nameplate information or other manufacturer documentation approved by Chugach. Field evaluation and subsequent listing of such equipment is not acceptable.

308 Compliance with Codes and Ordinances

Construction of new or remodeled installations must conform to current and applicable provisions of the National Electrical Code (NEC), the National Electrical Safety Code (NESC), federal, state, and municipal codes, regulations and ordinances, the Chugach Tariff, and Chugach's Electric Service Requirements. Chugach personnel are not authorized to waive federal, state or municipal regulations.

When additions, changes, or modifications to premise wiring occurs in conjunction with the installation of interconnected non-utility generating equipment, a current MOA electrical inspection shall be required prior to interconnection.

Information and/or questions about the National Electrical Code should be directed to the Municipality of Anchorage, Development Services, Building Safety Plan Review Engineer, or to the Lead Electrical Inspector.

Where there is a conflict between Chugach's Tariff and this book, the Tariff shall take precedence. Codes, ordinances, and regulations are available from several sources. Chugach's Tariff is available for customer inspection at Chugach's office.

Section 400 - Equipment Specifications and Design Requirements**401 Introduction and Overview**

This section outlines minimum interconnection requirements for each class of producer-owned facilities. At a minimum, Chugach requires that all of the producer's interconnection equipment and facilities meet the requirements contained within IEEE Std. 1547, Part 4.1: General Requirements. This section also provides general descriptions of the components, including functionality, purpose, and responsibilities of both the producer and Chugach regarding ownership, installation, and maintenance. Specific requirements for each classification of producer-owned interconnected generation equipment can be found in Sections 415 through 419.

402 General Metering Requirements

Chugach requires "Bi-directional metering" for all classes of non-utility generation installations. Bi-directional metering enables Chugach to accurately measure and record the real energy flows (watt-hours) delivered to and received from a producer's facility. Chugach will provide all meters used for revenue purposes at its expense. Chugach's bi-directional meters will have measurement capability that includes a separate register for delivered power and a separate register for received power. Depending upon the specific application, Chugach's meters may also include the following:

- Demand measurement
- Load Profile recording
- Time-of-use registers
- Reactive (VAR) measurement

It is the producer's responsibility to provide, install, and maintain all facilities necessary to accommodate Chugach's metering. Necessary facilities include service entrance equipment such as meter sockets, meter disconnect devices, CT cabinets, service termination enclosures, and related equipment.

All service entrance equipment must comply with the most recent edition of Chugach's Electric Service Requirements.

403 Generator Output Metering Requirements

Chugach requires the separate measurement of the output of non-utility generating equipment for all classes of facilities except for Class A - NET facilities. Separate measurement of a generator's output may require a generator output meter in addition to the bi-directional meter.

In most cases, the bi-directional meter installed at the point of interconnection will meet the requirement for generator output metering. However, depending on the design and configuration of a producer's facilities, a separate metering point for generator output metering may be required.

When required, the generator output meter shall measure the output of the producer's generator ahead of any loads connected to the generator.

Chugach will provide the generator output meter when required; the producer shall provide all necessary metering and service equipment related to the generator output meter (i.e. meter sockets, CT cabinets, etc.)

404 Interconnection Paralleling Device Requirements

The term “interconnection paralleling device” as used in these requirements is defined as the switchgear or circuit breaker, which is controlled by the producer’s interconnection control system. An interconnection paralleling device is part of the producer’s facilities and establishes the physical electrical connection for parallel operation with the Chugach electric power system.

Chugach requires approved switchgear or circuit breaker(s) (paralleling devices) to allow separation of the producer’s generating equipment from the Chugach electric power system during system disturbances.

Paralleling devices must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection as required by IEEE Std. 1547, Part 4.1.8.3.

Paralleling devices for all classes must have sufficient interrupting capacity to interrupt the maximum available fault current at a particular location.

405 Interconnection Disconnect Device Requirements

The term “interconnection disconnect device” as used in these requirements is defined as a manually operated switch for the exclusive use of Chugach to physically isolate non-utility generating equipment from Chugach’s electric power system. For the purposes of these requirements, the term “external disconnect switch” or “EDS” is synonymous with the term “interconnection disconnect device”.

Chugach requires the producer to install a manual interconnection disconnect device as a means of electrically isolating the producer’s non-utility generating facility from the Chugach system and establishing working clearances for maintenance and repair work in accordance with Chugach safety rules and practices.

The manual interconnection disconnect device shall be lockable and readily accessible by Chugach personnel as required by Section 105, and provide visible verification of disconnection from Chugach’s electric power system.

The manual interconnection disconnect device shall be located on the Chugach side of the producer’s generating equipment. The producer shall furnish and install the device and assume ownership and maintenance responsibilities. Only devices specifically approved by Chugach shall be used.

The manual interconnection disconnect device shall be physically located at a location approved by Chugach for ease of access and visibility to Chugach personnel. The disconnect device shall be identified with a Chugach-designated device number.

The manual interconnection disconnect device shall not be used by the producer to make or break parallels between the Chugach system and the producer’s generator(s). The device enclosure and operating handle (when present) must be kept locked at all times by Chugach.

A power-operable interconnection disconnect device may be used on Class C and Class D facilities under some circumstances with approval from Chugach. Where a power-operable disconnect device is used, it shall have manual over-ride capability in the event of a supply failure or equipment malfunction

An interconnection disconnect device is required for all classes of non-utility generation facilities.

Section 400 - Equipment Specifications and Design Requirements

The manual interconnection disconnect device shall be placed between the producer's non-utility generating equipment and Chugach's metering equipment.

Chugach strongly recommends that the interconnection disconnect device for Class A - NET facilities be placed between the non-utility generating equipment and the producer's loads. However, at the producer's option, the manual interconnection disconnect device may be placed between the producer's interconnection paralleling device and Chugach's metering equipment. Those Class A - NET facilities that place the interconnection disconnect device between the producer's generating equipment and the producer's loads enable utility service to continue serving those loads in some cases where the generating equipment must be separated from the producer's loads and/or Chugach's system.

Interconnection disconnect devices shall meet the following minimum requirements:

- The disconnect device shall be placed near the facility metering at an approved location;
- The disconnect device shall be externally operable without exposing the operator to contact with live parts and, if power-operable, of a type that can be opened manually in the event of a supply failure;
- The disconnect device shall provide a visible-break indication, showing whether switch contacts are in the open or closed position;
- The disconnect device shall be rated not less than the anticipated load and available fault current;
- The disconnect device shall be rated for the voltage of the circuit on which it is installed;
- Disconnect devices energized from both sides shall have markings indicating that all contacts of the disconnect equipment may be energized;
- The disconnect device shall be gang-operated, opening all up-grounded conductors;
- The disconnect device shall be housed in an enclosure suitable for the location as determined by Chugach;
- The disconnect device shall be lockable in both the open and closed positions by means of a padlock with a shackle diameter of 5/16 inches or greater.

Section 400 - Equipment Specifications and Design Requirements**406 Interconnection Transformers**

The function of an interconnection transformer is to interconnect a producer's non-utility generation facilities to the Chugach electric power system.

A dedicated interconnection transformer is defined in these requirements as a transformer that is dedicated to serving a producer's facility exclusively; no other Chugach customers shall be connected to a dedicated interconnection transformer.

One purpose of a dedicated interconnection transformer is to minimize any adverse impacts to Chugach's customers which may result from parallel operation of non-utility generation facilities. When power quality problems or service interruptions related to non-utility generation facilities develop and affect other Chugach customers, a dedicated interconnection transformer may be required.

Class A - NET, Class A, and Class B installations do not usually require a dedicated interconnection transformer. However, each application for interconnection to Chugach's system will be evaluated on an individual basis. Under certain circumstances, a dedicated interconnection transformer may be required on Class A - NET, Class A, and Class B installations; examples of such circumstances include but are not limited to the following:

- The producer's total rated generating capacity is at or above the rating of the existing Chugach transformer serving the producer's facilities.
- The producer's electrical system characteristics differ from Chugach's standard system-voltages and configurations (Refer to Section 304: Standard System Voltages).
- The producer's facility adversely impacts the quality of power delivered to adjacent customers on Chugach's system (Refer to Section 500: Interconnected Operating Requirements).

Class C and D facilities require a dedicated interconnection transformer in all cases. Where the installation of a dedicated interconnection transformer is required, the producer shall be responsible for all labor and material costs associated with the installation. Where a Chugach transformer already exists and serves no customers other than the producer's facilities, an additional interconnection transformer may not be required.

In those circumstances where the producer provides the dedicated interconnection transformer and when circumstances require the non-utility generator to be out of service, the producer shall disconnect the interconnection transformer from the Chugach electric power system.

Section 400 - Equipment Specifications and Design Requirements**407 Protection and Control Devices**

Certain protective functions and control equipment are necessary to ensure both the safety and the reliability of the Chugach electric power system. While the producer is responsible for the installation and maintenance of such equipment, it should be noted that the required equipment outlined in this section applies only to the protection of the Chugach system, not the producer's facilities. Typically, the minimum protective and control equipment requirements for all classifications of producer-owned facilities are as follows:

1. Paralleling Device (controlled switchgear and/or circuit breaker)
2. Anti-Islanding Protective Functions
 - a) Overvoltage Protective Relaying
 - b) Under-voltage Protective Relaying
 - c) Over-frequency Protective Relaying
 - d) Under-frequency Protective Relaying
3. Synchronization Protection:
 - a) Synchronous Generators: Automatic Synchronizing with Relay Supervision
 - b) Induction Generators: Speed Matching Relaying
 - c) Power Converter Systems: Conform to IEEE Standard 1547, Parts 4.1.3 and 5.1.2.C.

Due to the impact that large facilities can have on the Chugach system, additional requirements may be necessary for such facilities, including but not limited to:

1. System Fault Protection Functions
 - a) Ground Overcurrent Protective Relaying
 - b) Phase-fault Protective Relaying
2. Transfer Trip Capability
3. Export Power Control Equipment
 - a) Voltage Regulator/Power Factor Controller
 - b) Direct Digital Control (Chugach SCADA Control)
 - c) Power System Stabilizer

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Section 400 - Equipment Specifications and Design Requirements

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Section 400 - Equipment Specifications and Design Requirements**408 Over/Under Voltage Protection**

The table below applies to all classes of non-utility generation equipment. However, clearing times may represent maximum clearing time or default clearing time, depending upon the base rating of the generation equipment.

The producer's over-voltage and under-voltage interconnection protective functions shall detect voltage at point of interconnection and shall open the paralleling device within the times specified in the table below, if the voltage is within the stated ranges.

Voltage Range [V] (% or nominal voltage ^a)	Clearing Time ^b (seconds)
$V < 50\%$	0.16
$50\% \leq V < 88\%$	2.00
$110\% < V < 120\%$	1.00
$V \geq 120\%$	0.16

a Nominal system voltage stated in ANSI Std. C84.1-1995, Table 1.

b Maximum clearing time for generators with base ratings up to 30 kW, for base ratings greater than 30 kW, time represents default clearing time.

Section 400 - Equipment Specifications and Design Requirements**409 Over/Under Frequency Protection**

For Class A - NET and Class A facilities, the producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified in the table below, if the frequency is within the stated ranges.

Frequency Range [f] (Hz)	Maximum Clearing Time (seconds)
$f > 60.5$	0.16
$f < 59.5$	0.16

For Class B facilities, the producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified in the table below, if the frequency is within the stated ranges.

Generator Base Rating	Frequency Range [f] (Hz)	Clearing Time ^a (seconds)
≤ 30 kW	$f > 60.5$	0.16
	$f < 59.5$	0.16
> 30 kW	$f > 60.5$	0.16
	$f < \{59.8 - 57\}$	Adjustable 0.16 to 300 ^b
	$f < 57$	0.16

^a For generators with base ratings up to 30 kW, maximum clearing times; for base ratings greater than 30 kW, default clearing times.

^b Chugach shall provide specific clearing times for each producer interconnection.

For Class C and D facilities, the producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified in the table below, if the frequency is within the stated ranges.

Frequency Range [f] (Hz)	Clearing Time ^a (seconds)
$f > 60.5$	0.16
$f < \{59.8 - 57\}$	Adjustable 0.16 to 300 ^b
$f < 57$	0.16

^a Default clearing times.

^b Chugach shall provide specific clearing times for each producer interconnection.

Section 400 - Equipment Specifications and Design Requirements**410 Synchronization Protection**

For parallel operation, the Producer's facilities shall meet the requirements pertaining to synchronization specified within IEEE Std. 1547, Parts 4.1.3 and 5.1.2. Specific equipment requirements are as follows:

a) Synchronous Generator Interconnection

Synchronous generators operated in parallel with the Chugach electric system are required to have automatic relay supervision (ANSI Device No. 25) to verify synchronism for permissive closure of the interconnection circuit breaker. Manual synchronizing systems are not approved for interconnected operation with the Chugach system.

b) Induction Generator Interconnection

Due to the 'slip' inherent to induction generators, synchronous operation cannot be precisely maintained when operating in parallel with the Chugach system. Therefore, Chugach requires that speed-matching relaying (ANSI Device No. 15) be utilized, set to permit breaker (or contactor) closing when generator speed is maintained above 95 percent of the Chugach system synchronous speed at the point of interconnection.

c) Power Converter Interconnection

Power converter systems that produce a fundamental voltage before the paralleling device is closed are capable of stand-alone operation, thus shall be tested to meet the requirements as outlined in IEEE Std. 1547, Part 5.1.2.A. All other power converter based systems shall meet the requirements contained in IEEE 1547, Part 5.1.2.C.

411 Telemetry and Monitoring Requirements

Telemetry generally involves the communication of measured outputs from the producer's generating facility to Chugach. This can include variables such as the status of equipment and controller functions as well as plant output data (voltage, real and reactive power, power quality, etc.). Typically, variables are transmitted with the aid of a communication channel that permits the measurement to be interpreted at a distance from the primary detector.

- a) Class A - NET facilities do not require data telemetry.
- b) Class A and B facilities do not require data telemetry in most cases.
- c) Classes C and D facilities do require telemetering of data to include interconnection status, power flows (real and reactive power), voltage, and frequency.
- d) For specific telemetering requirements for Class C and D facilities, refer to Interconnection Equipment Requirements by Class.

Section 400 - Equipment Specifications and Design Requirements**412 Operational Data Logging**

Class A - NET facilities are not required to have operational data logging equipment. Class A and B facilities do not require operational data logging, but when such data is available or maintained by the producer, it shall be provided to Chugach upon request.

Class C and D facilities may require data logging. When required, the producer shall provide a seven (7) day digital data logger. For specific parameter recording requirements, refer to Section 418 for Class C facilities and Section 419 for Class D facilities.

Typically, operational data logs include recorded information on generating unit operations such as the following:

- Key operational parameter such as voltage, real and reactive power, frequency, etc.;
- Protective equipment operations (circuit breaker trips, protective relay targets, etc.);
- Time and nature of communications with Chugach Dispatch personnel.

413 Export Power Control Equipment

Class A - NET facilities are not required to have export power control equipment.

In most cases, export power control equipment will not be necessary for Class A and B facilities.

Where a producer and Chugach formulate a power purchase agreement for export power from the producer's facility, special control equipment may be necessary depending upon the specific performance terms of the agreement.

Class C and D facilities may export substantial amounts of power into Chugach's electric power system, and as a result, these classes of facilities may require export power control equipment. This equipment may include Voltage Regulation Control, Power Factor Controllers, and Power System Stabilizers, as necessary. Chugach shall determine when such equipment is necessary. Refer to the specific requirements for Class C in Section 418 and for Class D in Section 419 for further information.

414 Protection & Control System Testing Conformance

In all cases, the producer's protective relay and control systems associated with the interconnection shall adhere to the requirements contained in IEEE Std. 1547.1

In order to allow performance and verification of functional testing as required, these systems shall have accessible sensing inputs or testing terminal blocks, or acceptable equivalents as determined by Chugach.

Section 400 - Equipment Specifications and Design Requirements**415 Class A - NET Equipment Requirements****A. Application of Minimum Requirements for Class A - NET Facilities**

This subsection addresses the general minimum interconnection equipment necessary for Class A - NET facilities. Specific requirements for each individual facility may vary, depending on factors such as location of the interconnection, the number and proximity of adjacent Chugach customers, and the characteristics of the facility interconnecting to the Chugach system. Chugach has developed minimum requirements based on the following assumptions as to the characteristics of Chugach's system and the producer's facilities at the point of interconnection:

1. The total capacity of all producer-owned non-utility generating equipment installed on, or proposed to be installed on, the interconnecting Chugach feeder, will be less than 10 percent of the average annual hourly peak demand (kVA) for that feeder.
2. Interconnections to Chugach's electric power system will be made at Chugach's standard secondary voltages on individual secondary circuits.
3. The producer will install non-utility generating equipment with a total capacity rating of 25 kVA or less,
4. Class A - NET installations are limited to single-phase, network, or three-phase services rated at 200 amps or less, utilizing self-contained metering equipment.

Where proposed interconnections fall outside of the above parameters, modifications to the minimum requirements will be necessary in order to maintain the safety, reliability, and operational performance of the Chugach system.

B. Metering Requirements for Class A - NET Facilities

Class A - NET installations require a residential combination meter panel and service disconnect meeting the requirements of Service Equipment Specification E-601 for residential applications or a combination safety socket panel with test-block bypass and service disconnect meeting the requirements of Service Equipment Specification E-602 for non-residential applications. Chugach will use a single meter with bi-directional measurement capability. Generator output metering is not required on Class A - NET facilities, except that Chugach reserves the right to require generator output metering at Chugach's expense.

C. Interconnection Paralleling Devices for Class A - NET Facilities

A paralleling device is required for Class A - NET facilities. Chugach requires approved switchgear or circuit breaker(s) (paralleling devices) to allow separation of the producer's generating equipment from the Chugach electric power system during fault conditions. The paralleling device establishes the physical electrical connection for parallel operation with the Chugach electric power system. Paralleling devices must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection as required by IEEE Std. 1547, Part 4.1.8.3.

Section 400 - Equipment Specifications and Design Requirements**D. Interconnection Disconnect Devices for Class A - NET Facilities**

A manual interconnection disconnect device is required for Class A - NET facilities. Refer to Section 405 for details on interconnection disconnect devices.

Refer to Section 405 for options regarding switch placement on Class A - NET facilities.

E. Interconnection Transformers for Class A - NET Facilities

Class A - NET installations usually do not require a dedicated interconnection transformer. Refer to Section 406 for details on interconnection transformers.

F. Protection and Control Devices for Class A - NET Facilities

Refer to Section 407 for details regarding protection and control devices, the general interconnection protective and control requirements for Class A - NET installations are as follows:

1. Paralleling Device

- a. A Chugach-approved circuit breaker is required to allow separation of the producer's generation equipment from the Chugach system during fault conditions.
- b. This device must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection and must have sufficient interrupting capacity to interrupt the maximum available fault current at its location.

2. Over/Under Voltage Protection

- a. The producer's over-voltage and under-voltage interconnection protective functions shall detect voltage at the point of interconnection and shall open the paralleling device within the times specified, if the voltage is within the stated ranges.
- b. Refer to Section 408 for over/under voltage protection details.

3. Over/Under Frequency Protection

- a. The producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified, if the frequency is within the stated ranges.
- b. Refer to Section 409 for over/under frequency protection details.

Section 400 - Equipment Specifications and Design Requirements**G. Synchronization Protection for Class A - NET Facilities**

Refer to Section 410 for synchronization protection related to Class A - NET facilities.

H. Ground-Fault Protection for Class A - NET Facilities

In general, Class A - NET facilities may interconnect to Chugach's electric power system without the provision of ground-fault protection which limits contributions to ground faults on Chugach's system. However, in accordance with IEEE 1547, Part 4.2.1, the producer's interconnection equipment shall demonstrate the ability to cease energization of, and disconnect from, Chugach's electric power system under fault conditions.

I. Phase-Fault Protection for Class A - NET Facilities

In general, Class A - NET facilities may interconnect Chugach's electric power system without the provision of phase-fault protection which limits contributions to phase-to-phase faults or three-phase faults on Chugach's system. However, in accordance with IEEE 1547, Part 4.2.1, the producer's interconnection equipment shall demonstrate the ability to cease energization of, and disconnect from, Chugach's electric power system under fault conditions.

J. Telemetry and Monitoring for Class A - NET Facilities

Chugach will not require telephone or data line service at the metering point for Class A - NET facilities.

Chugach will not require power quality monitoring for Class A - NET facilities.

K. Operational Data Logging for Class A - NET Facilities

Chugach will not require operational data logging for Class A - NET facilities.

L. Export Power Control Equipment for Class A - NET Facilities

Chugach will not require export control equipment for Class A - NET facilities.

Section 400 - Equipment Specifications and Design Requirements**M. Equipment Summary for Class A - NET Facilities**

Following is an interconnection equipment requirements summary for Class A - NET facilities

- Bi-directional Metering: Required
- Generator Output Metering: Not Required
- Paralleling Device: Required
- Manual Interconnection Disconnect Device: Recommended but not required
- Dedicated Interconnection Transformer: Normally not required, but may depend on specific facility characteristics
- Under-voltage Protection: Required
- Over-voltage Protection: Required
- Under-frequency Protection: Required
- Over-frequency Protection: Required
- Ground-fault Protection: Not required, but must meet IEEE 1547, Part 4.2.1
- Transfer Trip Capability: Not required
- Phase-fault Protection: Not Required
- Telemetry Capability: Not Required
- Power Quality Monitoring: Not Required
- Voice and Data Communication Capability: Required in the form of a 24-hour contact phone number
- Operational Data Logging: Not Required
- Export Power Control Equipment: Not Required
- Automatic Synchronizing w/ Relay Supervision: Required for facilities with synchronous and similar type generators; may be required for facilities with power converters
- Speed Matching Relaying: Required for facilities with induction generators

Section 400 - Equipment Specifications and Design Requirements

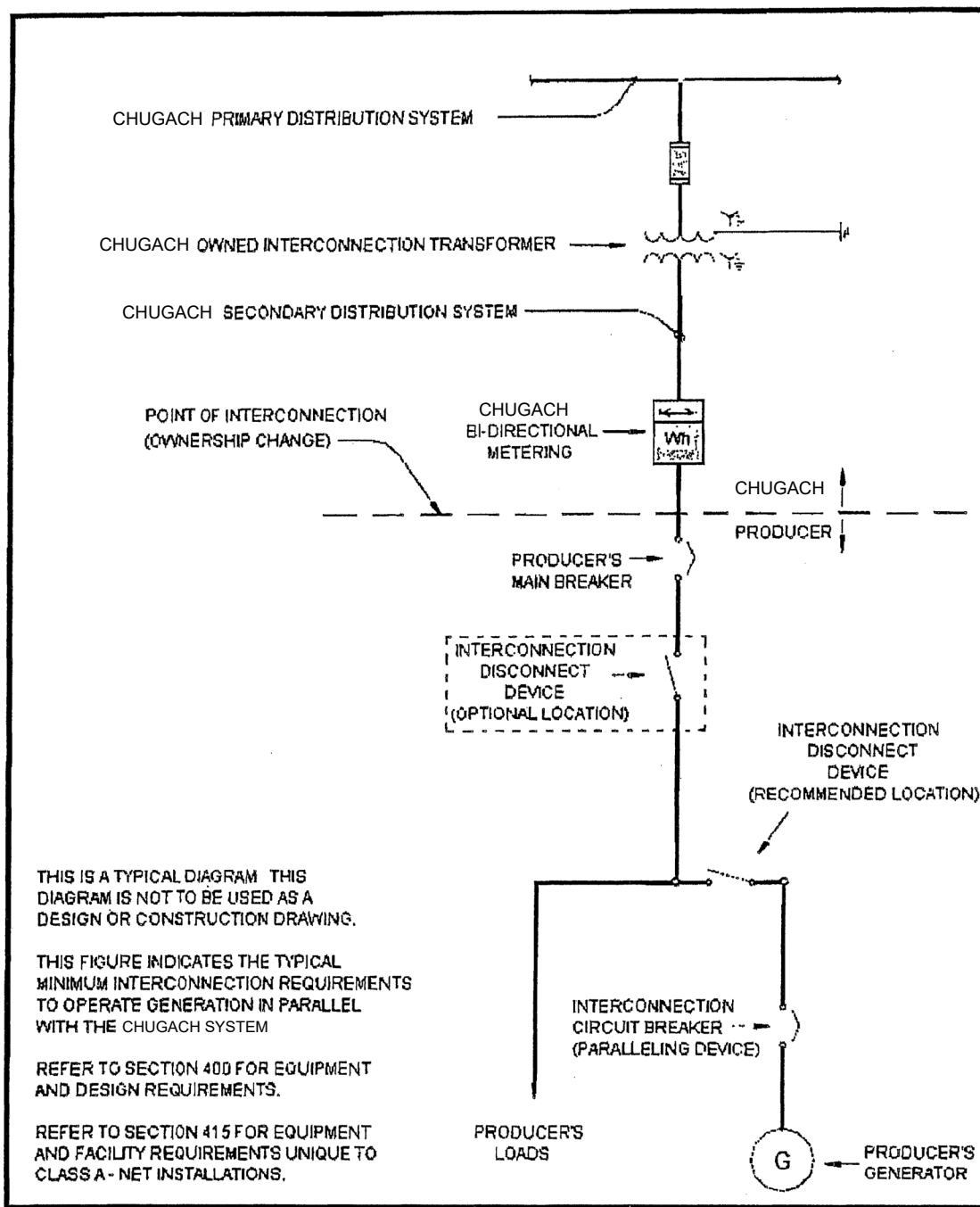
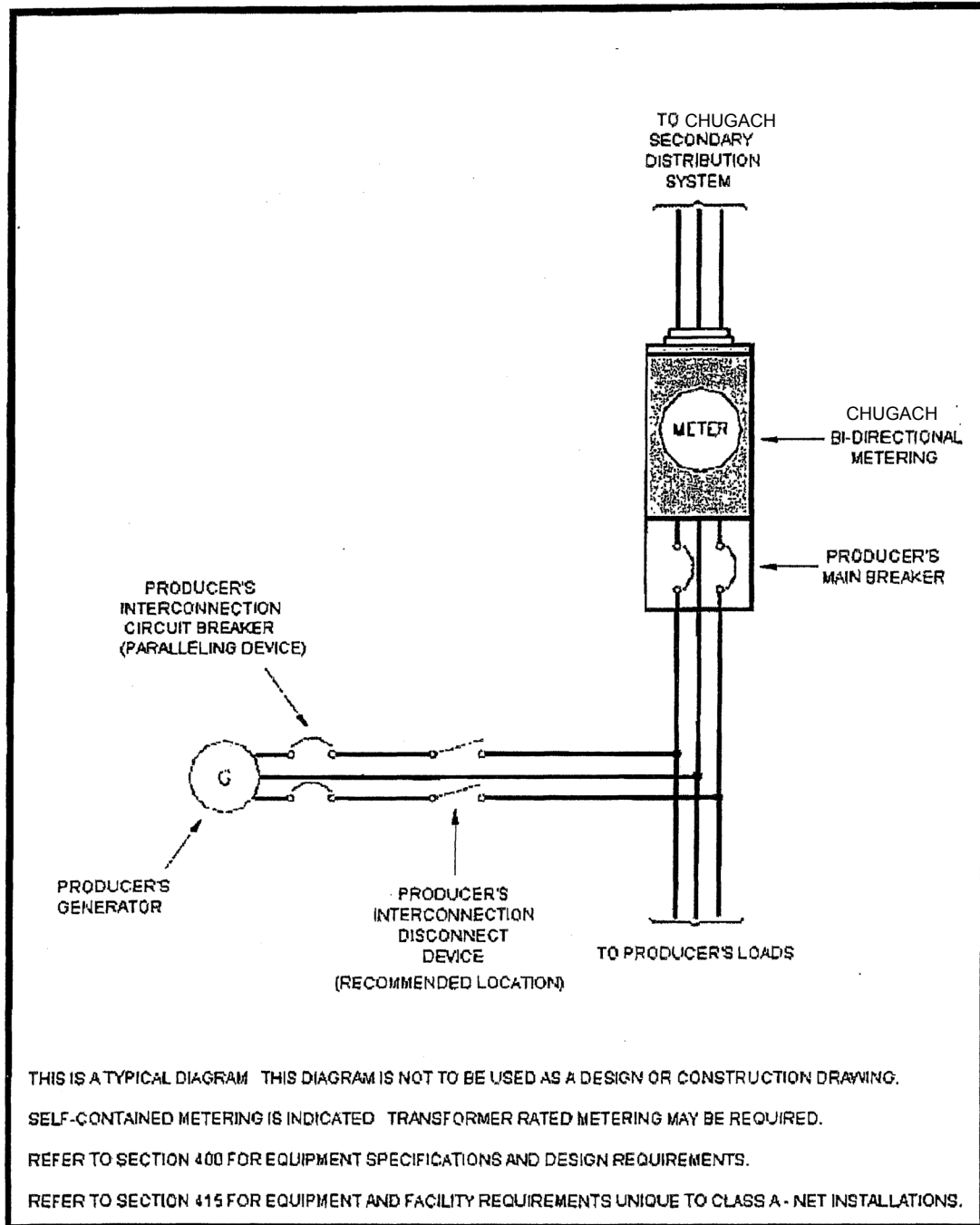


FIGURE A-1 NET

TYPICAL SECONDARY SYSTEM INTERCONNECTION
CLASS A - NET FACILITIES (25 kVA AND LESS)

DRAWING NUMBER MLP_FIGA-1NET

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Section 400 - Equipment Specifications and Design Requirements**FIGURE A-2 NET**TYPICAL METERING DIAGRAM
CLASS A - NET FACILITIES (25 KVA AND LESS)

DRAWING NUMBER MLP_FIGA-2NET

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Section 400 - Equipment Specifications and Design Requirements**416 Class A Equipment Requirements****A. Application of Minimum Requirements for Class A Facilities**

This subsection addresses the general minimum interconnection equipment necessary for Class A facilities. Specific requirements for each individual facility may vary, depending on factors such as location of the interconnection, the number and proximity of adjacent Chugach customers, and the characteristics of the facility interconnecting to the Chugach system. Chugach has developed minimum requirements based on the following assumptions as to the characteristics of Chugach's system and the producer's facilities at the point of interconnection:

1. The total capacity of all producer-owned non-utility generating equipment installed on, or proposed to be installed on, the interconnecting Chugach feeder, will be less than 10 percent of the average annual hourly peak demand (kVA) for that feeder.
2. Interconnections to Chugach's electric power system will be made at Chugach's standard secondary voltages on individual secondary circuits.
3. The producer will install non-utility generating equipment with a total capacity rating of 25 kVA or less.
4. Class A installations are limited to single-phase, network, or three-phase services rated at 200 amps or less, utilizing self-contained metering equipment.

Where proposed interconnections fall outside of the above parameters, modifications to the minimum requirements will be necessary in order to maintain the safety, reliability, and operational performance of the Chugach system.

B. Metering Requirements for Class A Facilities

Bi-directional metering and generator output metering is required on the producer's generating facilities. In most cases, the bi-directional meter will meet the requirement for generator output metering. However, under some circumstances separate generator output metering may be required. Refer to Section 402 for details on general metering requirements and Section 403 for details on generator output metering requirements. Consult with Chugach regarding metering requirements for a specific non-utility generating facility.

C. Interconnection Paralleling Devices for Class A Facilities

A paralleling device is required for Class A facilities. Chugach requires approved switchgear or circuit breaker(s) (paralleling devices) to allow separation of the producer's generation equipment from the Chugach electric power system during fault conditions. The paralleling device establishes the physical electrical connection for parallel operation with the Chugach electric power system.

Paralleling devices must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection as required by IEEE Std. 1547, Part 4.1.8.3.

Section 400 - Equipment Specifications and Design Requirements**D. Interconnection Disconnect Devices for Class A Facilities**

A manual interconnection disconnect device is required for Class A facilities. Refer to Section 405 for details on interconnection disconnect devices.

E. Interconnection Transformers for Class A Facilities

Class A installations usually do not require a dedicated interconnection transformer. Refer to Section 406 for details on interconnection transformers.

F. Protection and Control Devices for Class A Facilities

Refer to Section 407 for details regarding protection and control devices. The general interconnection protective and control requirements for Class A installations are as follows:

1. Paralleling Device
 - a. A Chugach-approved circuit breaker is required to allow separation of the producer's generating equipment from the Chugach system during fault conditions.
 - b. This device must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection and must have sufficient interrupting capacity to interrupt the maximum available fault current at its location.
2. Over/Under Voltage Protection
 - a. The producer's over-voltage and under-voltage interconnection protective functions shall detect voltage at the point of interconnection, and shall open the paralleling device within the times specified, if the voltage is within the stated ranges.
 - b. Refer to Section 408 for over/under voltage protection details.
3. Over/Under Frequency Protection
 - a. The producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified, if the frequency is within the stated ranges.
 - b. Refer to Section 409 for over/under frequency protection details.

Section 400 - Equipment Specifications and Design Requirements**G. Synchronization Protection for Class A Facilities**

Refer to Section 410 for synchronization protection related to Class A facilities.

H. Ground-Fault Protection for Class A Facilities

In general, Class A facilities may interconnect to Chugach's electric power system without the provision of ground-fault protection which limits contributions to ground faults on Chugach's system. However, in accordance with IEEE 1547, Part 4.2.1, the producer's interconnection equipment shall demonstrate the ability to cease energization of, and disconnect from, Chugach's electric power system under fault conditions.

I. Phase-Fault Protection for Class A Facilities

In general, Class A facilities may interconnect to Chugach's electric power system without the provision of phase-fault protection which limits contributions to phase-to-phase faults or three-phase faults on Chugach's system. However, in accordance with IEEE 1547, Part 4.2.1, the producer's interconnection equipment shall demonstrate the ability to cease energization of and disconnect from, Chugach's electric power system under fault conditions.

J. Telemetry and Monitoring for Class A Facilities

Chugach will not require telephone or data line service at the metering point for Class A facilities.

Chugach will not require power quality monitoring for Class A facilities.

K. Operational Data Logging for Class A Facilities

Chugach will not require operational data logging for Class A facilities.

L. Export Power Control Equipment for Class A Facilities

Chugach will not require export control equipment for Class A facilities.

Section 400 - Equipment Specifications and Design Requirements**M. Equipment Summary for Class A Facilities**

Following is an interconnection equipment requirements summary for Class A facilities

- Bi-directional Metering: Required
- Generator Output Metering: Required, refer to Section 403
- Paralleling Device: Required
- Manual Interconnection Disconnect Device: Required
- Dedicated Interconnection Transformer: Normally not required, but may depend on specific facility characteristics
- Under-voltage Protection: Required
- Over-voltage Protection: Required
- Under-frequency Protection: Required
- Over-frequency Protection: Required
- Ground-fault Protection: Not required, but must meet IEEE 1547, Part 4.2.1
- Transfer Trip Capability: Not Required
- Phase-fault Protection: Not Required
- Telemetry Capability: Not Required
- Power Quality Monitoring: Not Required
- Voice and Data Communication Capability: Required in the form of a 24-hour contact phone number
- Operational Data Logging: Not Required
- Export Power Control Equipment: Not Required
- Automatic Synchronizing w/ Relay Supervision: Required for facilities with synchronous and similar type generators; may be required for facilities with power converters
- Speed Matching Relaying: Required for facilities with induction generators

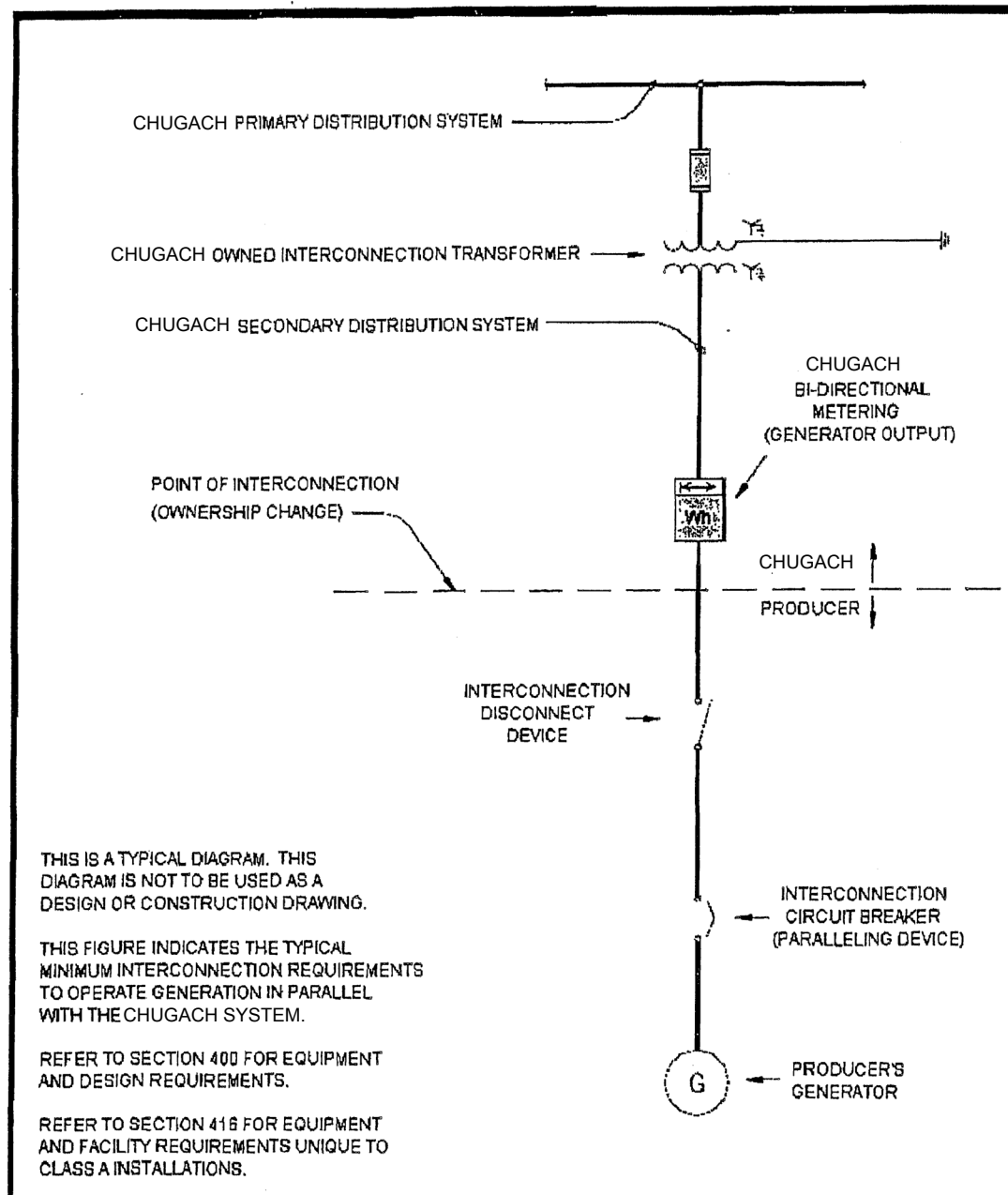
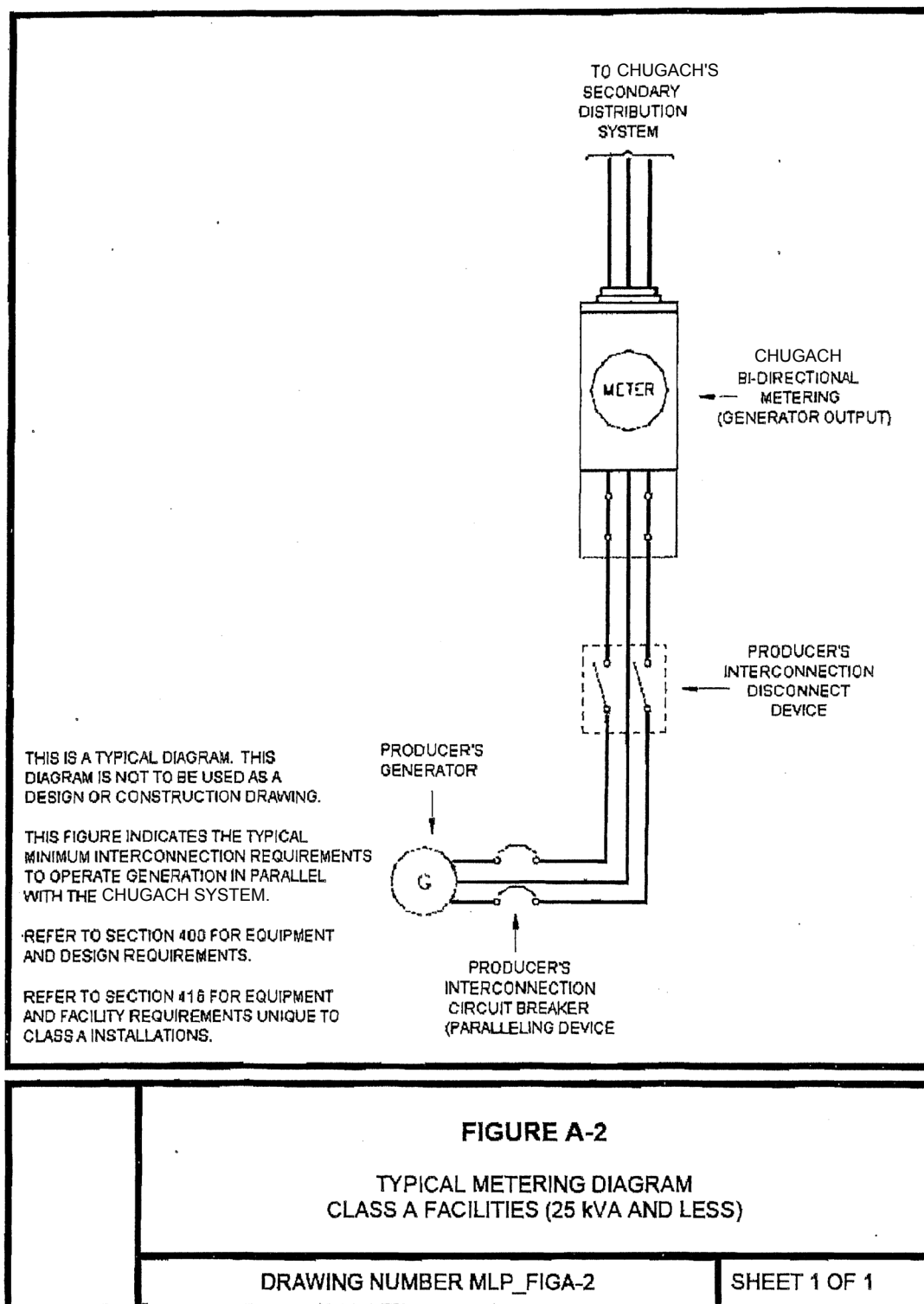
Section 400 - Equipment Specifications and Design Requirements

FIGURE A-1

TYPICAL SECONDARY SYSTEM INTERCONNECTION
CLASS A FACILITIES (25 KVA AND LESS)

DRAWING NUMBER MLP_FIG-A-1

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Section 400 - Equipment Specifications and Design Requirements

Section 400 - Equipment Specifications and Design Requirements**417 Class B Equipment Requirements****A. Application of Minimum Requirements for Class B Facilities.**

This subsection addresses the general minimum interconnection equipment necessary for Class B facilities. Specific requirements for each individual facility may vary, depending on factors such as location of the interconnection, the number and proximity of adjacent Chugach customers, and the characteristics of the facility interconnecting to the Chugach system. Chugach has developed minimum requirements based on the following assumptions as to the characteristics of Chugach's system and the producer's facilities at the point of interconnection:

1. The total capacity of all producer-owned non-utility generating equipment installed on, or proposed to be installed on, the interconnecting Chugach feeder, will be less than 15 percent of the average annual hourly peak demand (kVA) for that feeder.
2. Interconnections to Chugach's electric power system will be made at Chugach's standard secondary voltages on individual secondary circuits.
3. The producer will install non-utility generating equipment with a total capacity rating no less than 25 kVA and no greater than 100 kVA.

Where proposed interconnections fall outside of the above parameters, modifications to the minimum requirements will be necessary in order to maintain the safety, reliability, and operational performance of the Chugach system.

B. Metering Requirements for Class B Facilities

Bi-directional metering and generator output metering is required on the producer's generating facilities. In most cases, the bi-directional meter will meet the requirement for generator output metering. However, under some circumstances separate generator output metering may be required. Refer to Section 402 for details on general metering requirements and Section 403 for details on generator output metering requirements. Consult with Chugach regarding metering requirements for a specific non-utility generating facility.

C. Interconnection Paralleling Devices for Class B Facilities

A paralleling device is required for Class B facilities. Chugach requires approved switchgear or circuit breaker(s) (paralleling devices) to allow separation of the producer's generation equipment from the Chugach electric power system during fault conditions. The paralleling device establishes the physical electrical connection for parallel operation with the Chugach electric power system.

Paralleling devices must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection as required by IEEE Std. 1547, Part 4.1.8.3.

Section 400 - Equipment Specifications and Design Requirements**D. Interconnection Disconnect Devices for Class B Facilities**

A manual interconnection disconnect device is required for Class B facilities. Refer to Section 405 for details on interconnection disconnect devices.

E. Interconnection Transformers for Class B Facilities

Generally, Class B installations do not require a dedicated interconnection transformer for interconnecting the producer's generating equipment. However, under certain conditions, the utilization of a dedicated transformer may be required. Examples of such conditions would include the following:

1. The producer's total generating equipment capacity rating is at or above the capacity rating of the existing Chugach transformer serving the Producer's facilities.
2. The Producer's electrical system characteristics differ from Chugach's standard system voltages and configurations (Refer to Section 304: Standard System Voltages).

Where the installation of a new dedicated interconnection transformer is required, the producer shall be responsible for all associated labor and material costs.

F. Protection and Control Devices for Class B Facilities

Refer to Section 407 for details regarding protection and control devices. The general interconnection protective and control requirements for Class B installations are as follows:

1. Paralleling Device
 - a. A Chugach-approved circuit breaker is required to allow separation of the producer's generating equipment from the Chugach system during fault conditions.
 - b. This device must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection and must have sufficient interrupting capacity to interrupt the maximum available fault current at its location.
2. Over/Under Voltage Protection
 - a. The producer's over-voltage and under-voltage interconnection protective functions shall detect voltage at the point of interconnection, and shall open the paralleling device within the times specified, if the voltage is within the stated ranges.
 - b. Refer to Section 408 for over/under voltage protection details.
3. Over/Under Frequency Protection
 - a. The producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified, if the frequency is within the stated ranges.
 - b. Refer to Section 409 for over/under frequency protection details.

Section 400 - Equipment Specifications and Design Requirements**G. Synchronization Protection for Class B Facilities**

For parallel operation, the producer's facilities shall meet the synchronization requirements specified in IEEE Std. 1547, Parts 4.1.3 and 5.1.2. Specific equipment requirements are as follows:

1. Synchronous Generator Interconnection
 - a) Synchronous generators operated in parallel with the Chugach electric system are required to have automatic relay supervision (ANSI Device No. 25) to verify synchronism for permissive closure of the interconnection circuit breaker.
 - b) Manual synchronizing systems are not approved for interconnected operation with the Chugach system.
2. Induction Generator Interconnection
 - a) Due to the "slip" inherent to induction generators, synchronous operation cannot be precisely maintained when operating in parallel with the Chugach system. Therefore, Chugach requires that speed-matching relaying (ANSI Device No. 15) be utilized, set to permit breaker (or contactor) closing when generator speed is maintained above 95 percent of the Chugach system synchronous speed at the point of interconnection.
3. Power Converter Interconnection
 - a) Power converter systems that produce a fundamental voltage before the paralleling device is closed are capable of stand-alone operation and as a result they shall be tested to meet the requirements as outlined in IEEE Std. 1547, Part 5.1.2.A.
 - b) All other power converter based systems shall meet the requirements contained in IEEE 1547, Part 5.1.2.C.

H. Ground-Fault Protection for Class B Facilities

In general, Class B facilities with a total generating capacity less than 40 kVA may interconnect to Chugach's electric power system without the provision of ground-fault protection which limits contributions to ground faults on Chugach's system. However, in accordance with IEEE 1547, Part 4.2.1, the producer's interconnection equipment shall demonstrate the ability to cease energization of, and disconnect from, Chugach's electric power system under fault conditions.

Class B facilities with a total generating capacity greater than 40 kVA may be required to provide ground-fault protection (ANSI Device 51N), depending upon the possible fault current contribution from the producer's facilities to ground faults on Chugach's system. The requirement will be determined by Chugach on a case-by-case basis.

Section 400 - Equipment Specifications and Design Requirements**I. Phase-Fault Protection for Class B Facilities**

In general, Class B facilities with a total generating capacity less than 40 kVA may interconnect to Chugach's electric power system without the provision of phase-fault protection which limits contributions to phase-to-phase or three-phase faults on Chugach's system. However, in accordance with IEEE 1547, Part 4.2.1, the producer's interconnection equipment shall demonstrate the ability to cease energization of, and disconnect from, Chugach's electric power system under fault conditions.

Class B facilities with a total generating capacity greater than 40 kVA may be required to provide voltage-restrained overcurrent relaying (ANSI Device No. 50/51V), or impedance relaying (ANSI Device No. 21), for phase-fault protection. The requirement will be determined by Chugach on a case-by-case basis.

J. Telemetry and Monitoring for Class B Facilities

Chugach will not require telephone or data line service for meter telemetry at the metering point for Class B facilities under most circumstances. However, when telemetry is required, the line may be shared or dedicated and monthly charges for the telephone or data line shall be paid by the producer.

Chugach will not require power quality monitoring for Class B facilities under most circumstances. However, when Chugach determines that there is either the possibility of, or an indication that the output from the producer's facility can adversely affect the standard performance of the Chugach electric power system, including the quality of power delivered to Chugach customers, power quality monitoring will be required.

K. Operational Data Logging for Class B Facilities

Under most circumstances, Chugach will not require the installation of operational data logging equipment for Class B facilities. However, as available or maintained by the producer, such logs shall be made available to Chugach upon request.

L. Export Power Control Equipment for Class B Facilities

Under most circumstances, Chugach will not require the installation of control equipment for the purpose of exporting power. In certain cases, depending upon the specific contractual agreement between Chugach and the producer, additional control equipment may be necessary to control the amount and quality of the power exported. Such cases will be reviewed on an individual basis.

Section 400 - Equipment Specifications and Design Requirements**M. Equipment Summary for Class B Facilities**

Following is an interconnection equipment requirements summary for Class B facilities

- Bi-directional Metering: Required
- Generator Output Metering: Required, refer to Section 403
- Paralleling Device: Required
- Manual Interconnection Disconnect Device: Required
- Dedicated Interconnection Transformer: Normally not required, but may depend on specific facility characteristics
- Under-voltage Protection: Required
- Over-voltage Protection: Required
- Under-frequency Protection: Required
- Over-frequency Protection: Required
- Ground-fault Protection: Generally not required for installations rated 40 kVA and lower. However, specific requirements will be determined on a case-by-case basis
- Transfer Trip Capability: Not Required
- Phase-fault Protection: Not Required
- Telemetry Capability: Typically not required for power converters. However, specific requirements will be determined on a case-by-case basis
- Power Quality Monitoring: May be required; will be determined on a case-by-case basis
- Voice and Data Communication Capability: Voice communications required, data communications not required
- Operational Data Logging: Not Required
- Export Power Control Equipment: May be required; will be determined on a case-by-case basis
- Automatic Synchronizing w/ Relay Supervision: Required for facilities with synchronous and similar type generators; may be required for facilities with power converters
- Speed Matching Relaying: Required for facilities with induction generators

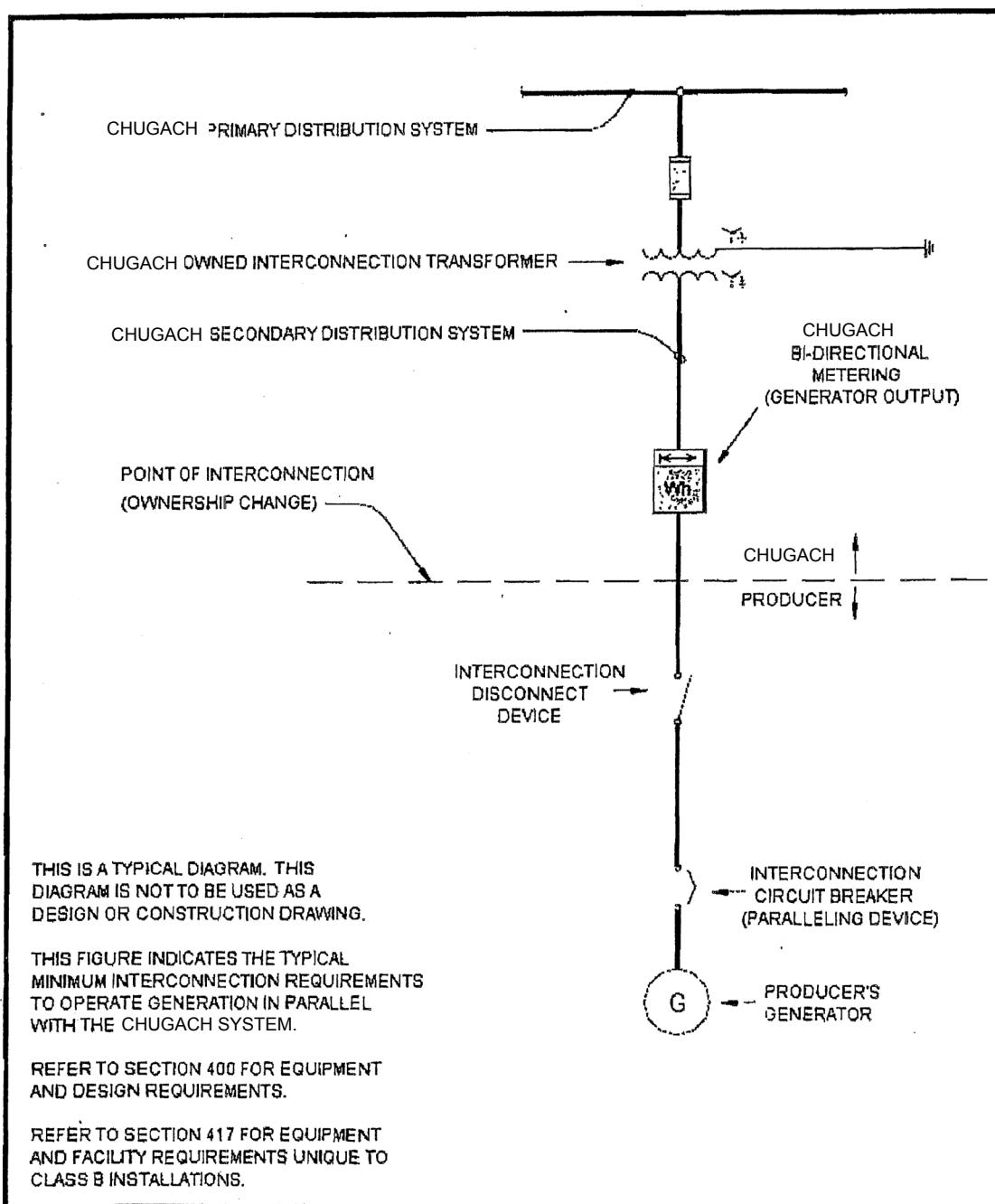
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Section 400 - Equipment Specifications and Design Requirements

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Section 400 - Equipment Specifications and Design Requirements**FIGURE B-1**

TYPICAL SECONDARY SYSTEM INTERCONNECTION
CLASS B FACILITIES (25 kVA TO 100 kVA)

DRAWING NUMBER MLP_FIGB-1

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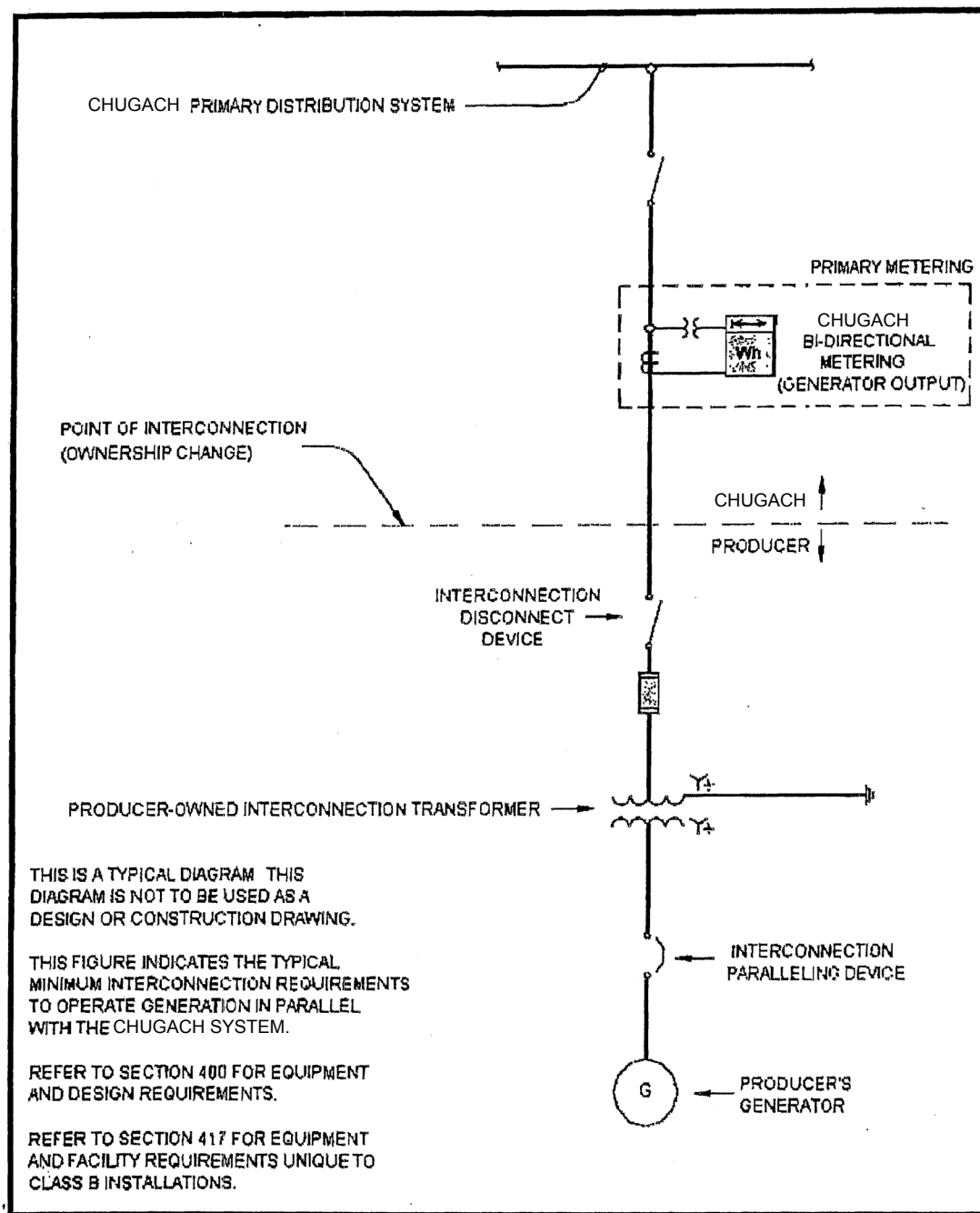


FIGURE B-2

**TYPICAL PRIMARY SYSTEM INTERCONNECTION
CLASS B FACILITIES (25 KVA TO 100 KVA)**

DRAWING NUMBER MLP_FIGB-2

SHEET 1 OF 1

Section 400 - Equipment Specifications and Design Requirements**418 Equipment Requirements - Class C Facilities****A. Application of Minimum Requirements for Class C Facilities**

This subsection addresses the general minimum interconnection equipment necessary for Class C facilities. Specific requirements for each individual facility may vary, depending on factors such as location of the interconnection, the number and proximity of adjacent Chugach customers, and the characteristics of the facility interconnecting to the Chugach system. Chugach has developed minimum requirements based on the following assumptions as to the characteristics of Chugach's system and the producer's facilities at the point of interconnection:

1. The total capacity of all producer-owned non-utility generating equipment installed on, or proposed to be installed on, the interconnecting Chugach feeder, will be less than 20 percent of the average annual hourly peak demand (kVA) for that feeder.
2. Interconnections to Chugach's electric power system will be made at Chugach's standard secondary voltages on individual secondary circuits.
3. The producer will install non-utility generating equipment with a total capacity rating no less than 100 kVA and no greater than 1,000 kVA.

Where proposed interconnections fall outside of the above parameters, modifications to the minimum requirements will be necessary in order to maintain the safety, reliability, and operational performance of the Chugach system.

B. Metering Requirements for Class C Facilities

Bi-directional metering and generator output metering is required on the producer's generating facilities. In most cases, the bi-directional meter will meet the requirement for generator output metering. However, under some circumstances separate generator output metering may be required. Refer to Section 402 for details on general metering requirements and Section 403 for details on generator output metering requirements. Consult with Chugach regarding metering requirements for a specific non-utility generating facility.

C. Interconnection Paralleling Devices for Class C Facilities

A paralleling device is required for Class C facilities. Chugach requires approved switchgear or circuit breaker(s) (paralleling devices) to allow separation of the producer's generation equipment from the Chugach electric power system during fault conditions. The paralleling device establishes the physical electrical connection for parallel operation with the Chugach electric power system.

Paralleling devices must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection as required by IEEE Std. 1547, Part 4.1.8.3.

Section 400 - Equipment Specifications and Design Requirements**D. Interconnection Disconnect Devices for Class C Facilities**

A manual interconnection disconnect device is required for Class C facilities. Refer to Section 405 for details on interconnection disconnect devices.

E. Interconnection Transformer for Class C Facilities

Chugach requires a dedicated interconnection transformer be used to interconnect all Class C installations to the Chugach electric power system.

In cases where an existing Chugach transformer serves the producer at the proposed point of interconnection, that transformer may serve as the dedicated interconnection transformer, provided the following conditions are met:

1. The Producer's maximum generating capacity (kVA) does not exceed the nominal rating of the transformer.
2. No other Chugach customers are served by the existing transformer.

Where the installation of a new dedicated interconnection transformer is required, the producer shall be responsible for all associated labor and material costs.

F. Protection and Control Devices for Class C Facilities

Refer to Section 407 for details regarding protection and control devices. The general interconnection protective and control requirements for Class C installations are as follows:

1. Paralleling Device
 - a. A Chugach-approved circuit breaker is required to allow separation of the producer's generating equipment from the Chugach system during fault conditions.
 - b. This device must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection and must have sufficient interrupt capacity to interrupt the maximum available fault current at its location.
2. Over/Under Voltage Protection
 - a. The producer's over-voltage and under-voltage interconnection protective functions shall detect voltage at the point of interconnection and shall open the paralleling device within the times specified, if the voltage is within the stated ranges.
 - b. Refer to Section 408 for over/under voltage protection details.
3. Over/Under Frequency Protection
 - a. The producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified, if the frequency is within the stated ranges.
 - b. Refer to Section 409 for over/under frequency protection details.

Section 400 - Equipment Specifications and Design Requirements**G. Synchronization Protection for Class C Facilities**

For parallel operation, the producer's facilities shall meet the synchronization requirements specified in IEEE Std. 1547, Parts 4.1.3 and 5.1.2. Specific equipment requirements are as follows:

1. Synchronous Generator Interconnection

- a) Synchronous generators operated in parallel with the Chugach electric system are required to have automatic relay supervision (ANSI Device No. 25) to verify synchronism for permissive closure of the interconnection circuit breaker.
- b) Manual synchronizing systems are not approved for interconnected operation with the Chugach system.

2. Induction Generator Interconnection

- a) Due to the "slip" inherent to induction generators, synchronous operation cannot be precisely maintained when operating in parallel with the Chugach system. Therefore, Chugach requires that speed-matching relaying (ANSI Device No. 15) be utilized, set to permit breaker (or contactor) closing when generator speed is maintained above 95 percent of the Chugach system synchronous speed at the point of interconnection.

3. Power Converter Interconnection

- a) Power converter systems that produce a fundamental voltage before the paralleling device is closed are capable of stand-alone operation and as a result they shall be tested to meet the requirements as outlined in IEEE Std. 1547, Part 5.1.2.A.
- b) All other power converter based systems shall meet the requirements contained in IEEE 1547, Part 5.1.2.C.

H. Ground-Fault Protection for Class C Facilities

Ground-fault Protection is required for all Class C facilities. This type of protection senses phase-to-ground faults on the Chugach electric power system and initiates tripping of the interconnection paralleling device in order to prohibit continuous contribution to such faults by the producer's generating equipment.

Ground overcurrent relaying (ANSI Device No. 51N) is required for ground-fault protection.

The producer shall provide an appropriate ground-fault protection scheme and coordinate with Chugach regarding trip settings. Prior to authorization for interconnected operation, Chugach will review and approve the ground fault protection scheme and trip settings.

Section 400 - Equipment Specifications and Design Requirements**I. Phase-Fault Protection for Class C Facilities**

Phase-fault Protection is required for all Class C facilities. This type of protection senses phase-to-phase faults or three-phase faults on the Chugach electric power system and initiates tripping of the interconnection paralleling device in order to prohibit continuous contribution to such faults from the producer's generating equipment.

Voltage-restrained overcurrent relaying (ANSI Device No. 50/51V), or impedance relaying (ANSI Device No. 21), is required for phase-fault protection.

The producer shall provide an appropriate phase-fault protection scheme and coordinate with Chugach regarding trip settings. Prior to authorization for interconnected operation, Chugach will review and approve the phase-fault protection scheme and trip settings.

J. Telemetry and Monitoring for Class C Facilities

A telephone or data line service at the metering point is required for Chugach's meter telemetry. This line may be shared or dedicated; monthly charges shall be paid by the producer.

Power quality monitoring shall be required in cases where Chugach determines that a potential for, or an indication that, the output from the producer's facility may adversely affect the standard performance of Chugach's electric power system or the quality of power delivered to other Chugach customers.

Depending upon specific requirements, the monitoring system may be required to detect and record such disturbances as wave form distortions, electrical noise, voltage sags or swells, frequency deviations, and harmonic distortions. The requirement for power quality monitoring will be determined by Chugach on a case-by-case basis.

K. Operational Data Logging for Class C Facilities

All Class C generating facilities are required to have and maintain a seven (7) day digital data logger which records volts, watts, VARs, frequency, and the status of key system informational elements, including relay targets and interconnection circuit breaker trip operations. The data logger shall provide a standard time stamp for tracked variables, including date and time of day (HH:MM:SS). Chugach will have the right to review these logs, especially when analyzing system disturbances.

L Export Power Control Equipment for Class C Facilities

In cases where the producer and Chugach formulate a power purchase agreement, the following equipment may be necessary in accordance with the terms of the specific contract:

1. Voltage Regulator/Power Factor Controller
 - a. The producer may be required to utilize either an approved voltage regulator or power factor controller in order to control voltage within specified limits.

Section 400 - Equipment Specifications and Design Requirements

- b. Where a voltage regulator is utilized for this purpose, it must be capable of maintaining the nominal Chugach interconnection point voltage under steady-state conditions, without hunting, and within ± 0.5 percent of the required set point (as directed by Chugach).
- c. Where a power factor controller is utilized, it must be capable of maintaining the power factor setting within ± 1.0 percent, at full load, at any point between 90 percent lagging and 95 percent leading. For export power to Chugach's electric power system, a power factor of 1.0 is generally preferred.
- d. The producer's generation may be required to follow a Chugach specified voltage or VAR schedule on an hourly, daily, or seasonal basis depending on the specific terms of a power purchase contract.
- e. The producer shall coordinate with Chugach Power Dispatch Center for specific operational instructions and issues.

2. Direct Digital Control

- a. Direct digital control (supervisory control) of unit output from Chugach's Power Dispatch Center may be required if the unit is to be dispatchable by Chugach under agreement.

3. Power System Stabilizer

- a. A power system stabilizer (PSS) control system may be required to provide necessary stability to the electrical system when system power oscillations occur.
- b. The necessity of a PSS will depend on the generator capacity and characteristics, the location of the interconnection to the Chugach system, and the system voltage level at the point of interconnection.

Section 400 - Equipment Specifications and Design Requirements**M. Equipment Summary for Class C Facilities**

Following is an interconnection equipment requirements summary for Class C facilities

- Bi-directional Metering: Required
- Generator Output Metering: Required, refer to Section 403
- Paralleling Device: Required
- Manual Interconnection Disconnect Device: Required
- Dedicated Interconnection Transformer: Required
- Under-voltage Protection: Required
- Over-voltage Protection: Required
- Under-frequency Protection: Required
- Over-frequency Protection: Required
- Ground-fault Protection: Required
- Transfer Trip Capability: Not Required
- Phase-fault Protection: Required
- Telemetry Capability: Required
- Power Quality Monitoring: May be required; will be determined on a case-by-case basis
- Voice and Data Communication Capability: Required
- Operational Data Logging: Required; refer to Section 418, subsection K
- Export Power Control Equipment: May be required; will be determined on a case-by-case basis
- Automatic Synchronizing w/ Relay Supervision: Required for facilities with synchronous and similar type generators; may be required for facilities with power converters
- Speed Matching Relaying: Required for facilities with induction generators

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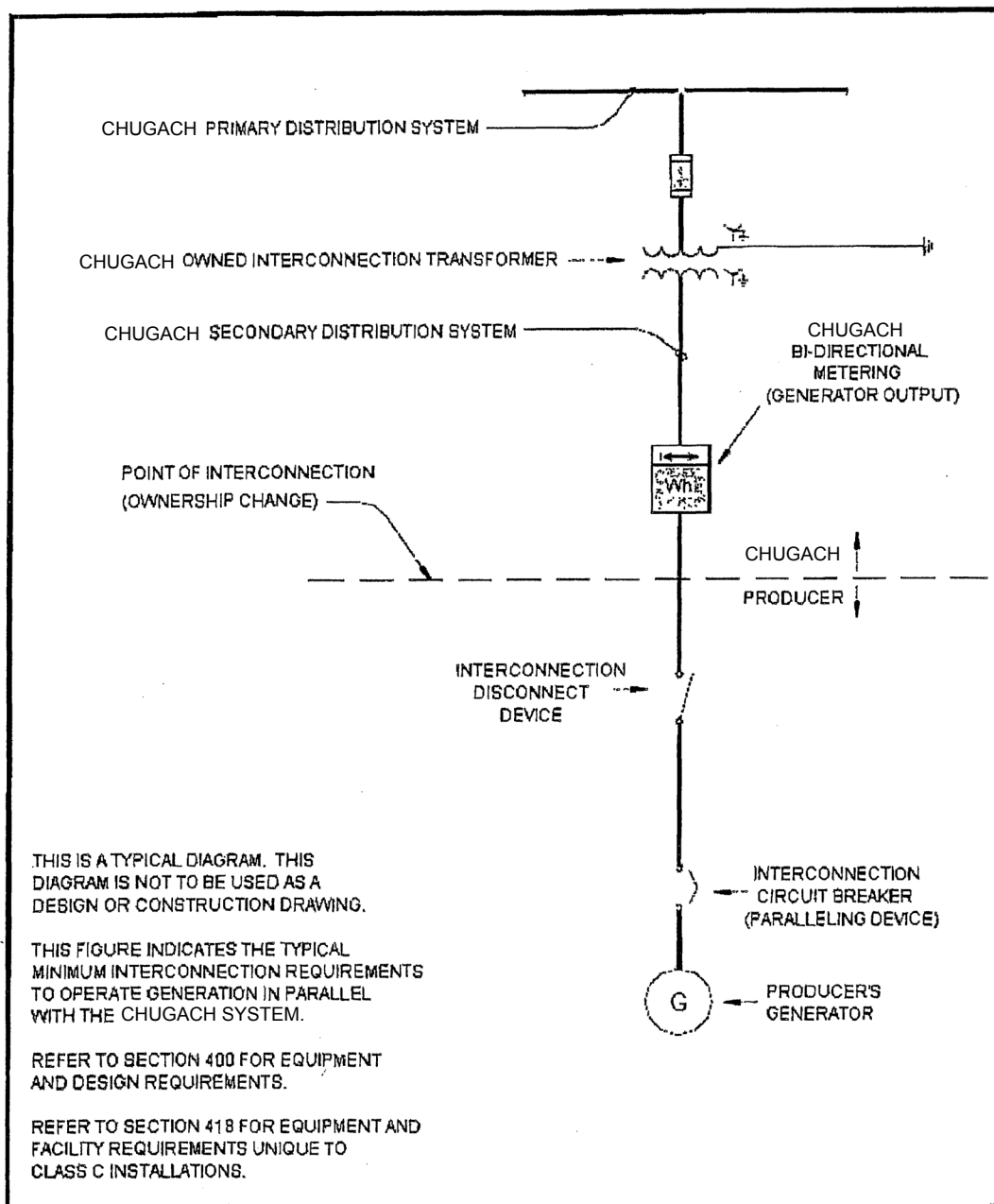
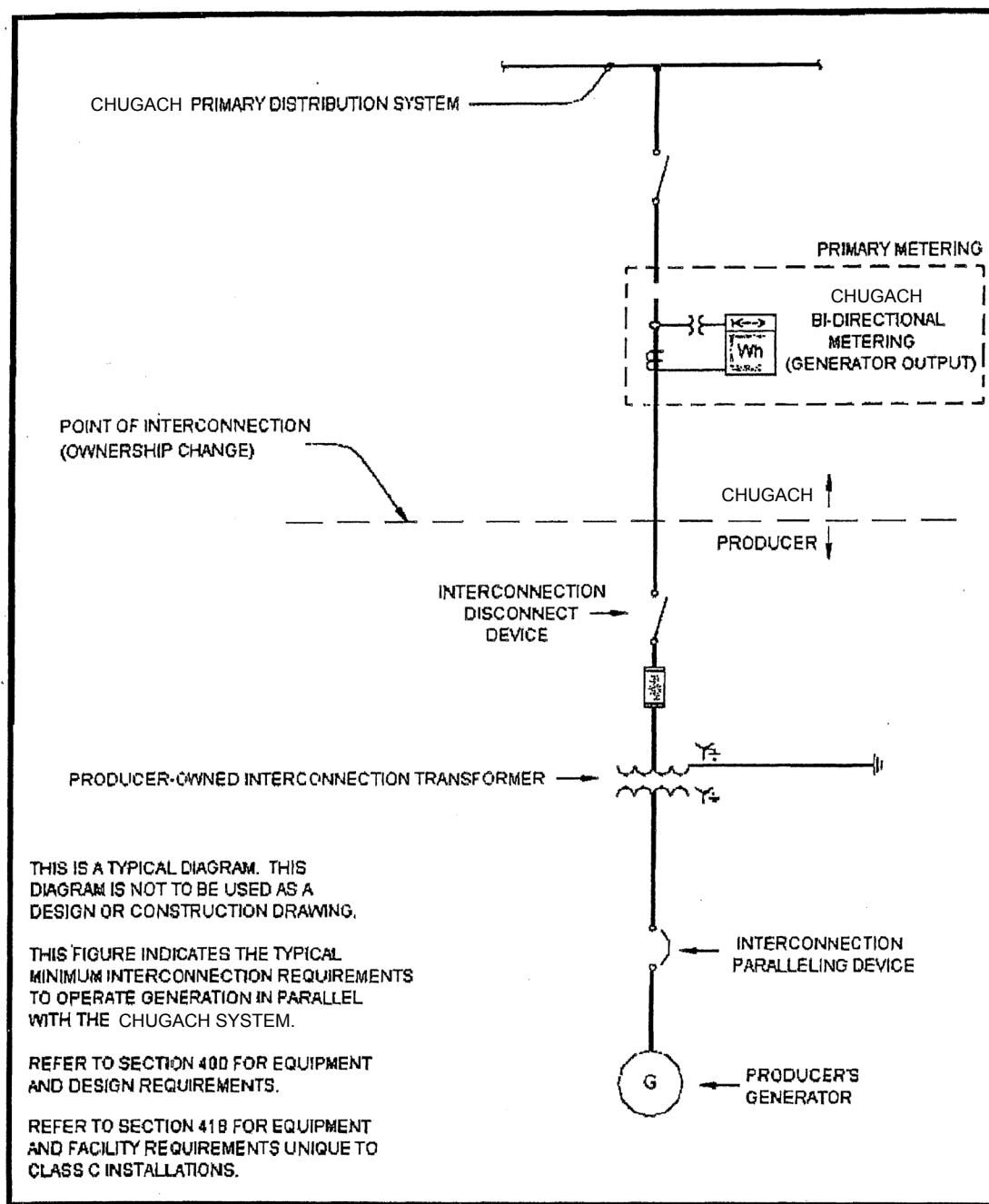


FIGURE C-1

TYPICAL SECONDARY SYSTEM INTERCONNECTION
CLASS C FACILITIES (100 kVA TO 1000 kVA)

DRAWING NUMBER MLP_FIGC-1

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Section 400 - Equipment Specifications and Design Requirements**FIGURE C-2**

TYPICAL PRIMARY SYSTEM INTERCONNECTION
CLASS C FACILITIES (100 kVA TO 1000 kVA)

DRAWING NUMBER MLP_FIG-2

SHEET 1 OF 1

Section 400 - Equipment Specifications and Design Requirements**419 Equipment Requirements Class D Facilities****A. Application of Minimum Requirements for Class D Facilities**

This subsection addresses the general minimum interconnection equipment necessary for Class D facilities. Specific requirements for each individual facility may vary, depending on factors such as location of the interconnection, the number and proximity of adjacent Chugach customers, and the characteristics of the facility interconnecting to the Chugach system. Chugach has developed minimum requirements based on the following assumptions as to the characteristics of Chugach's system and the producer's facilities at the point of interconnection:

1. The total capacity of all producer-owned non-utility generating equipment installed on, or proposed to be installed on, the interconnecting Chugach feeder, will be less than 25 percent of the average annual hourly peak demand (kVA) for that feeder.
2. Interconnections to Chugach's electric power system will be made at Chugach's standard distribution level primary voltages of 2.4/4.16 kV, 7.2/12.47 kV, or 19.9/34.5 kV.
3. The producer will install non-utility generating equipment with a total capacity rating no less than 1,000 kVA and no greater than 5,000 kVA.

Where proposed interconnections fall outside of the above parameters, modifications to the minimum requirements will be necessary in order to maintain the safety, reliability, and operational performance of the Chugach system.

B. Metering Requirements for Class D Facilities

Bi-directional metering and generator output metering is required on the producer's generating facilities. In most cases, the bi-directional meter will meet the requirement for generator output metering. However, under some circumstances separate generator output metering may be required. Refer to Section 402 for details on general metering requirements and Section 403 for details on generator output metering requirements. Consult with Chugach regarding metering requirements for a specific non-utility generating facility.

C. Interconnection Paralleling Devices for Class D Facilities

A paralleling device is required for Class D facilities. Chugach requires approved switchgear or circuit breaker(s) (paralleling devices) to allow separation of the producer's generation equipment from the Chugach electric power system during fault conditions. The paralleling device establishes the physical electrical connection for parallel operation with the Chugach electric power system.

Paralleling devices must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection as required by IEEE Std. 1547, Part 4.1.8.3.

Section 400 - Equipment Specifications and Design Requirements**D. Interconnection Disconnect Devices for Class D Facilities**

A manual interconnection disconnect device is required for Class D facilities. Refer to Section 405 for details on interconnection disconnect devices.

E. Interconnection Transformer for Class D Facilities

Chugach requires a dedicated interconnection transformer be used to interconnect all Class D installations to the Chugach electric power system.

In cases where an existing Chugach transformer serves the producer at the proposed point of interconnection, that transformer may serve as the dedicated interconnection transformer, provided the following conditions are met:

1. The Producer's maximum generating capacity (kVA) does not exceed the nominal rating of the transformer.
2. No other Chugach customers are served by the existing transformer.

Where the installation of a new dedicated interconnection transformer is required, the producer shall be responsible for all associated labor and material costs.

F. Protection and Control Devices for Class D Facilities

Refer to Section 407 for details regarding protection and control devices. The general interconnection protective and control requirements for Class D installations are as follows:

1. Paralleling Device
 - a. A Chugach-approved circuit breaker is required to allow separation of the producer's generating equipment from the Chugach system during fault conditions.
 - b. This device must be capable of withstanding 220% of the Chugach system voltage at the point of interconnection and must have sufficient interrupting capacity to interrupt the maximum available fault current at its location.
2. Over/Under Voltage Protection
 - a. The producer's over-voltage and under-voltage interconnection protective functions shall detect voltage at the point of interconnection, and shall open the paralleling device within the times specified, if the voltage is within the stated ranges.
 - b. Refer to Section 408 for over/under voltage protection details.
3. Over/Under Frequency Protection
 - a. The producer's over-frequency and under-frequency interconnection protective functions shall open the paralleling device within the times specified, if the frequency is within the stated ranges.
 - b. Refer to Section 409 for over/under frequency protection details.

Section 400 - Equipment Specifications and Design Requirements**G. Synchronization Protection for Class D Facilities**

For parallel operation, the producer's facilities shall meet the synchronization requirements specified in IEEE Std. 1547, Parts 4.1.3 and 5.1.2. Specific equipment requirements are as follows:

1. Synchronous Generator Interconnection

- a) Synchronous generators operated in parallel with the Chugach electric system are required to have automatic relay supervision (ANSI Device No. 25) to verify synchronism for permissive closure of the interconnection circuit breaker.
- b) Manual synchronizing systems are not approved for interconnected operation with the Chugach system.

2. Induction Generator Interconnection

- a) Due to the "slip" inherent to induction generators, synchronous operation cannot be precisely maintained when operating in parallel with the Chugach system. Therefore, Chugach requires that speed-matching relaying (ANSI Device No. 15) be utilized, set to permit breaker (or contactor) closing when generator speed is maintained above 95 percent of the Chugach system synchronous speed at the point of interconnection.

3. Power Converter Interconnection

- a) Power converter systems that produce a fundamental voltage before the paralleling device is closed are capable of stand-alone operation and as a result they shall be tested to meet the requirements as outlined in IEEE Std. 1547, Part 5.1.2.A.
- b) All other power converter based systems shall meet the requirements contained in IEEE 1547, Part 5.1.2.C.

H. Ground-Fault Protection for Class Facilities

Ground-fault Protection is required for all Class D facilities. This type of protection senses phase-to-ground faults on the Chugach electric power system and initiates tripping of the interconnection paralleling device in order to prohibit continuous contribution to such faults by the producer's generating equipment.

Ground overcurrent relaying (ANSI Device No. 51N) is required for ground-fault protection.

The producer shall provide an appropriate ground-fault protection scheme and coordinate with Chugach regarding trip settings. Prior to authorization for interconnected operation, Chugach will review and approve the ground fault protection scheme and trip settings.

Section 400 - Equipment Specifications and Design Requirements**I. Phase-Fault Protection for Class D Facilities**

Phase-fault Protection is required for all Class D facilities. This type of protection senses phase-to-phase faults or three-phase faults on the Chugach electric power system and initiates tripping of the interconnection paralleling device in order to prohibit continuous contribution to such faults from the producer's generating equipment.

Voltage-restrained overcurrent relaying (ANSI Device No. 50/51V), or impedance relaying (ANSI Device No. 21), is required for phase-fault protection.

The producer shall provide an appropriate phase-fault protection scheme and coordinate with Chugach regarding trip settings. Prior to authorization for interconnected operation, Chugach will review and approve the phase-fault protection scheme and trip settings.

J. Transfer Trip Capability for Class D Facilities

Chugach requires the producer to provide transfer trip capability for Class D facilities. Transfer trip capability is required in order to enable Chugach's system protection equipment to disconnect the producer's facility from Chugach's electric power system during system faults or disturbances. This is a critical function that enables Chugach's system protection equipment to operate as designed. The producer shall provide a dedicated, isolated voice grade fiber-optic communications circuit for this purpose.

K. Telemetry and Monitoring for Class D Facilities

A telephone or data line service at the metering point is required for Chugach's meter telemetry. This line may be shared or dedicated; monthly charges shall be paid by the producer.

Power quality monitoring shall be required in cases where Chugach determines that a potential for, or an indication that, the output from the producer's facility may adversely affect the standard performance of Chugach's electric power system or the quality of power delivered to other Chugach customers.

Depending upon specific requirements, the monitoring system may be required to detect and record such disturbances as wave form distortions, electrical noise, voltage sags or swells, frequency deviations, and harmonic distortions. The requirement for power quality monitoring will be determined by Chugach on a case-by-case basis.

L. Operational Data Logging for Class D Facilities

All Class D generating facilities are required to have and maintain a seven (7) day digital data logger which records volts, watts, VARs, frequency, and the status of key system informational elements, including relay targets and interconnection circuit breaker trip operations. The data logger shall provide a standard time stamp for tracked variables, including date and time of day (HH:MM:SS). Chugach will have the right to review these logs, especially when analyzing system disturbances.

Section 400 - Equipment Specifications and Design Requirements**M. Export Power Control Equipment for Class D Facilities**

In cases where the producer and Chugach formulate a power purchase agreement, the following equipment may be necessary in accordance with the terms of the specific contract:

1. Voltage Regulator/Power Factor Controller

- a. The producer may be required to utilize either an approved voltage regulator or power factor controller in order to control voltage within specified limits.
- b. Where a voltage regulator is utilized for this purpose, it must be capable of maintaining the nominal Chugach interconnection point voltage under steady-state conditions, without hunting, and within ± 0.5 percent of the required set point (as directed by Chugach).
- c. Where a power factor controller is utilized, it must be capable of maintaining the power factor setting within ± 1.0 percent, at full load, at any point between 90 percent lagging and 95 percent leading. For export power to Chugach's electric power system, a power factor of 1.0 is generally preferred.
- d. The producer's generation may be required to follow a Chugach specified voltage or VAR schedule on an hourly, daily, or seasonal basis depending on the specific terms of a power purchase contract.
- e. The producer shall coordinate with Chugach Power Dispatch Center for specific operational instructions and issues.

2. Direct Digital Control

- a. Direct digital control (supervisory control) of unit output from Chugach's Power Dispatch Center may be required if the unit is to be dispatchable by Chugach under agreement.

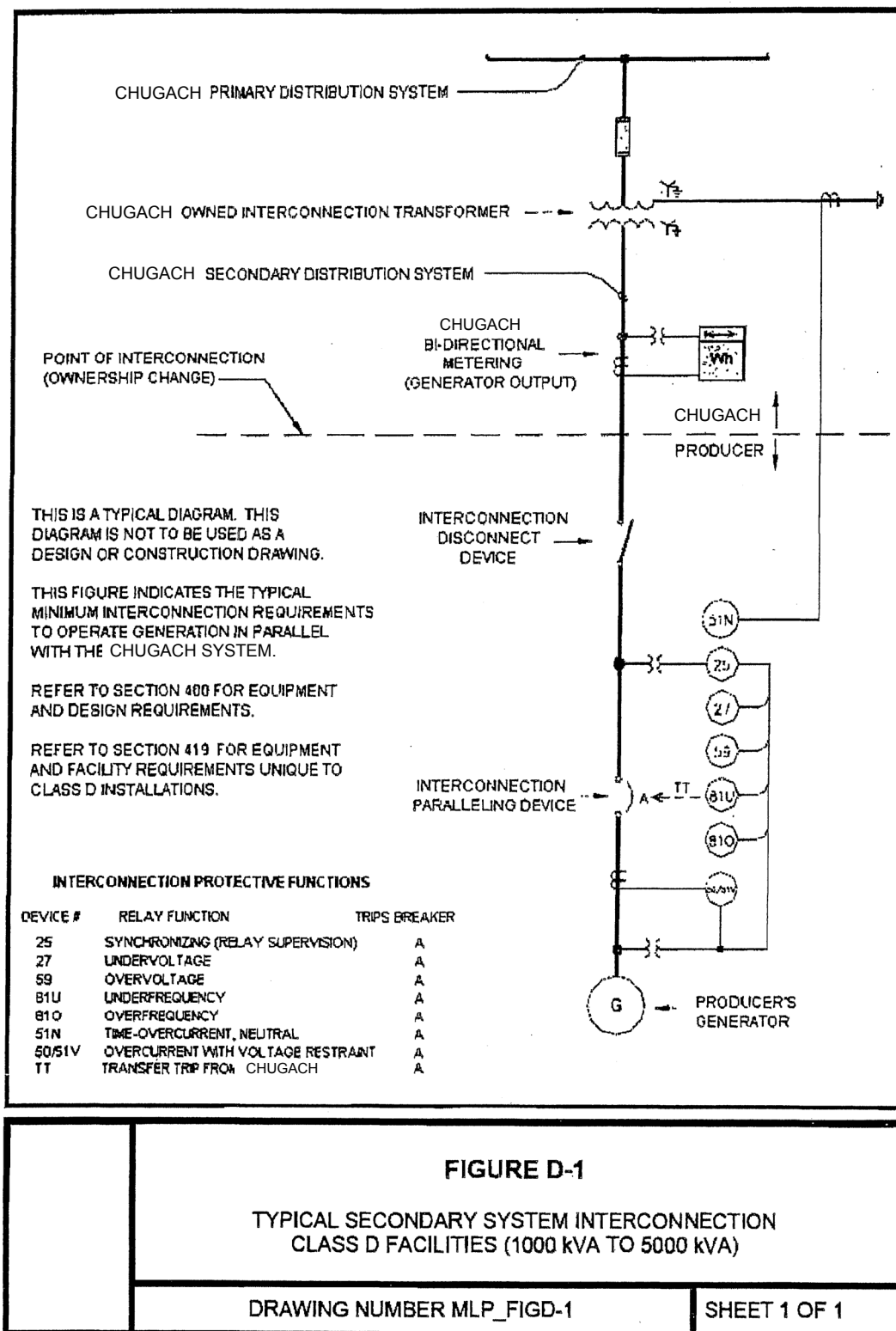
3. Power System Stabilizer

- a. A power system stabilizer (PSS) control system may be required to provide necessary stability to the electrical system when system power oscillations occur.
- b. The necessity of a PSS will depend on the generator capacity and characteristics, the location of the interconnection to the Chugach system, and the system voltage level at the point of interconnection.

Section 400 - Equipment Specifications and Design Requirements**N. Equipment Summary for Class D Facilities**

Following is an interconnection on equipment requirements summary for Class D facilities

- Bi-Directional Metering: Required
- Generator Output Metering: Required, refer to Section 403
- Paralleling Device: Required
- Manual Interconnection Disconnect Device: Required
- Dedicated Interconnection Transformer: Required
- Under-voltage Protection: Required
- Over-voltage Protection: Required
- Under-frequency Protection: Required
- Over-frequency Protection: Required
- Ground-fault Protection: Required
- Transfer Trip Capability: Required
- Phase-fault Protection: Required
- Telemetry Capability: Required
- Power Quality Monitoring: May be required; will be determined on a case-by-case basis
- Voice and Data Communication Capability: Required
- Operational Data Logging: Required, refer to Section 419, subsection L
- Export Power Control Equipment: May be required; will be determined on a case-by-case basis
- Automatic Synchronizing w/ Relay Supervision: Required for facilities with synchronous and similar type generators; may be required for facilities with power converters
- Speed Matching Relaying: Required for facilities with induction generators

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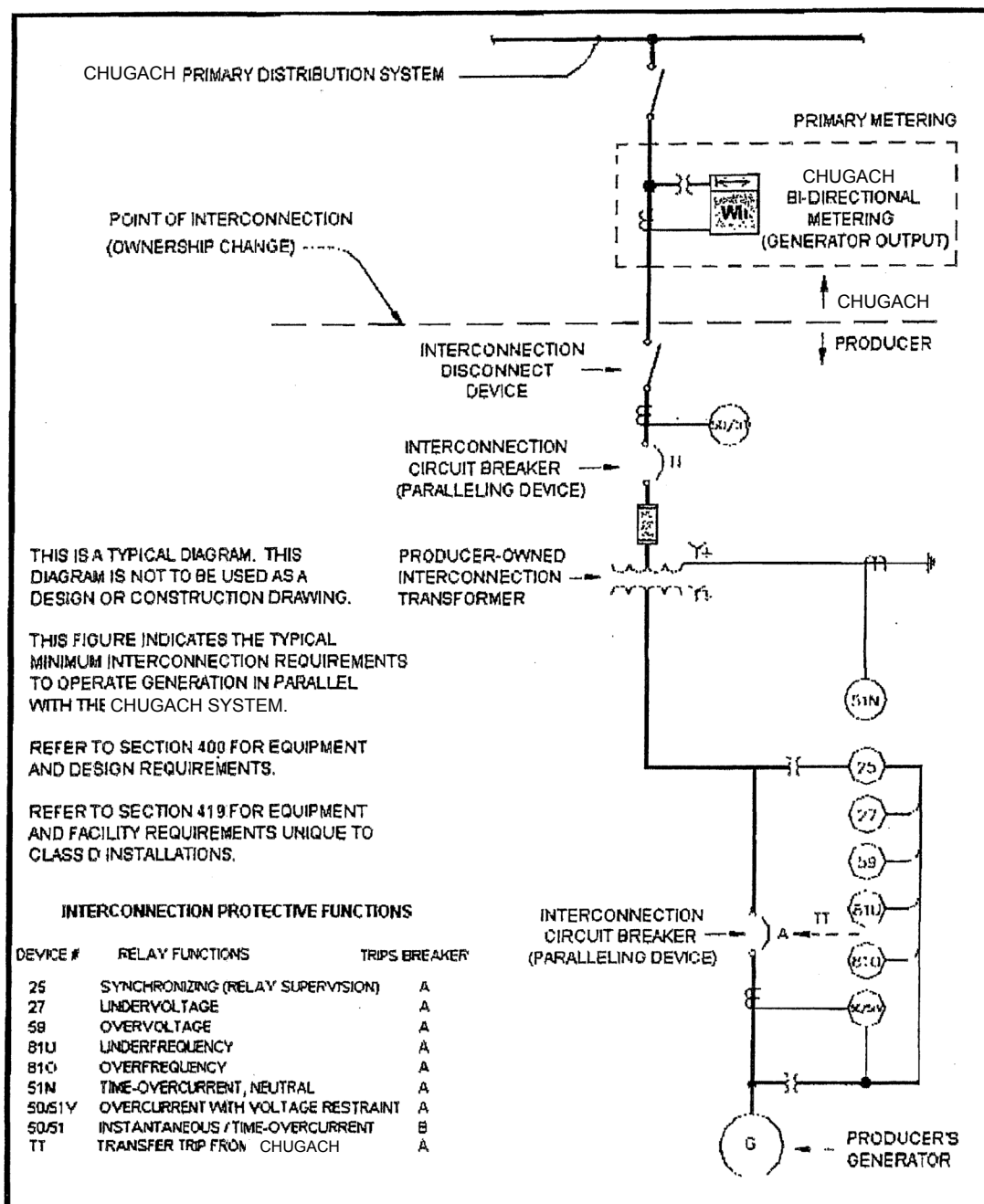


FIGURE D-2

TYPICAL PRIMARY SYSTEM INTERCONNECTION
CLASS D FACILITIES (1000 kVA TO 5000 kVA)

DRAWING NUMBER MLP_FIGD-2

SHEET 1 OF 1

Section 400 - Equipment Specifications and Design Requirements**420 Voice and Data Communications**

The capability to make direct verbal communications via telephone with the producer or the operator of producer's facility is required for all facility classifications. Voice communications shall be provided so that operating instructions or notification of system conditions can be given to the producer or any designated operator of the producer's equipment as necessary. Accordingly, the producer is required to provide a 24-hour accessible voice contact telephone number to Chugach.

For Class C and D facilities, data communications capability is required so that electronic data and/or operating instructions can be transferred between Chugach and the producer's facility as necessary.

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Section 500 - Interconnected Operating Requirements**501 General Operating Requirements**

The general operating requirements and criteria contained in this section apply to all non-utility generating facilities interconnected to the Chugach electric power system. Any producer operating outside of these requirements, unless provided express permission by Chugach, will not be permitted to operate in parallel with Chugach and will be responsible for any and all remedial actions and associated costs prior to gaining approval for parallel operation. The consequences for failing to meet any of these requirements are immediate disconnection and payment of all associated costs.

502 Insurance Requirements

The producer (owner) shall maintain general liability insurance coverage through a standard homeowner's policy or a standard commercial business policy for Class A - NET, Class A, and Class B facilities.

Producers (owners) of non-utility generation facilities classified as either Class A - NET or Class A facilities shall maintain a liability insurance policy in an amount no less than \$300,000.00. Producers (owners) of non-utility generation facilities classified as Class B facilities shall maintain a liability insurance policy in an amount no less than \$500,000.00.

Producers (owners) of non-utility generation facilities classified as either Class C or Class D facilities shall provide comprehensive general liability insurance coverage appropriate to the system design and capacity as determined by Chugach.

The producer (owner) shall provide Chugach with an up-to-date copy of the insurance policy declarations page prior to interconnecting non-utility generating equipment. The producer (owner) shall be obligated to furnish a copy of the insurance policy declarations page on an annual basis as long as the non-utility generating equipment is interconnected with the Chugach system.

The producer (owner) shall notify Chugach immediately by telephone and in writing within twenty-four hours after the occurrence of any accident as a result of the producer's (owner's) non-utility generating activities.

Required insurance does not relieve or release the producer (owner), its agents, subcontractors, and invitees from, or to limit their liability as to any and all obligations that result from non-utility generator operation.

503 Approval for Parallel Operation

The producer may not commence parallel operation of generating facilities without final written approval from Chugach. Chugach shall have the right to require inspection or witness testing of the producer's equipment or devices associated with the interconnection by qualified third parties.

Section 500 - Interconnected Operating Requirements**504 Discontinuance of Parallel Operation**

The producer shall discontinue parallel operation when requested by Chugach:

- To facilitate maintenance, test, or repair of utility facilities;
- During system emergencies;
- When the producer's generating equipment is interfering with Chugach customers and/or other power producers connected to the Chugach electric power system grid;
- When an inspection of the producer's generating equipment reveals either a lack of adequate equipment maintenance necessary to protect Chugach's electric power system or conditions that could be hazardous to the Chugach system.

When a producer-owned interconnection transformer exists as part of non-utility generation facilities, and when a producer discontinues parallel operation with the Chugach system, the producer-owned transformer shall be disconnected from Chugach's system. The producer-owned interconnection transformer shall not be re-connected to Chugach's system until such time as the non-utility generator is ready to resume service.

505 Islanded Operations

Unless expressly approved by Chugach, non-utility generators may not operate in an islanded mode with any portion of the Chugach electric power system. Once the Chugach circuit(s) connecting the producer's generating facility is de-energized, for any reason, the producer shall disconnect from the Chugach system and shall not be permitted to reconnect to it until Chugach has re-energized its system, as detailed in Section 511.

506 Voltage Levels & Fluctuations

Per IEEE Std. 1547, Parts 4.1 and 4.2, the producer's voltage (at the point of interconnection) and interconnection equipment shall adhere to the ratings and recommendations contained in the most recent ANSI C84.1 Standard. When operating in parallel with the Chugach system, the producer's voltage must be maintained within ± 5 percent of the standard Chugach system voltage at the point of interconnection.

Voltage fluctuations may be noticeable as visual lighting variations (flicker) and can cause damage to, or disrupt the operation of electronic equipment. The producer shall adhere to the requirements of IEEE Std. 1547, Part 4.3 regarding power quality.

Section 500 - Interconnected Operating Requirements**507 Voltage Regulation and Reactive Power Requirements**

Operation of the producer's generator must not adversely affect the voltage regulation of Chugach's electric power system. Per IEEE Std. 1547, Part 4.1.1, the producer shall not actively regulate Chugach system voltage at the point of interconnection, and shall not cause Chugach system voltage to deviate from the requirements of ANSI C84.1, Range A.

Facilities with synchronous generators shall provide sufficient generator reactive power capacity to withstand normal voltage changes on the Chugach system. The generator reactive power requirements, voltage regulation, and transformer ratio settings will be jointly determined by Chugach and the producer to ensure intersystem coordinating and operating capability. Producers are required to provide their own reactive power requirements in order to generate within the specified power factor range.

The parallel operation of the producer's generating equipment with the Chugach system will not, under any circumstance, be permitted to cause any reduction in the quality of service being provided to Chugach customers.

508 Generator Droop Requirements

Governor characteristics shall be set to provide a 5 percent droop characteristic (a 0.15 Hz change in the generator speed will cause a 5 percent change in the generator load). Governors must be operated unrestrained to ensure that droop will not exceed 5% and that system frequency is properly regulated.

509 Harmonics

Harmonic distortion is defined as the ratio of the root mean square (rms) value of the harmonic to the rms value of the fundamental voltage or current (refer to IEEE Standard 519). Distortion of the harmonic content of voltage and/or current waveforms can cause telecommunication interference, disable solid-state equipment, overheat transformers, and create resonant overvoltages. In order to protect Chugach's equipment as well as the equipment of Chugach's customers from damage, harmonic distortion must be maintained within acceptable limits.

The producer shall not exceed the harmonic limits for electric current contained in IEEE Std. 1547, Part 4.3.3. In addition, the producer shall not produce voltage distortion in excess of the limits specified in IEEE Std. 519, Section 11.5. Chugach advises that the producer consider and account for harmonics in the early stages of facility planning and design.

If excessive harmonic distortion is suspected, voltage and current distortion measurements will be performed to determine whether the producer's equipment is a source of, or contributor to, excessive distortion. If the producer's facility is found to be the source of excessive harmonic distortion, the producer will be billed for the investigation costs, and will be held responsible for corrective action to bring the harmonic content within the referenced limits.

Section 500 - Interconnected Operating Requirements**510 Power Factor Requirements**

Chugach requires that all interconnected non-utility generation maintain power factors within the range of 0.95 lagging and 0.95 leading at the point of interconnection. Producers are responsible for providing the reactive power necessary to maintain power factors within the specified range when operating in parallel with Chugach's electric power system. In certain cases, producers may contract with Chugach for the provision of ancillary services for reactive power support in order to maintain operation within the specified limits.

511 Coordination with the Chugach Protective System

The proper coordination of the producer's interconnection protective functions with the Chugach protection system is of critical importance to the safety and reliability of Chugach's electric power system. Accordingly, parallel operation will not be authorized or allowed until all required interconnection protective functions and settings have been reviewed and approved by Chugach, and properly coordinated with the Chugach protective system. Specifics on required protective functions and settings can be found in Sections 404, 407, 408, 409, 410, 414, 417, 418, and 419.

Because most short circuits (faults) on overhead lines are of a temporary nature, Chugach employs the use of automatic circuit reclosers (ACR) to automatically reclose circuit breakers on faulted lines one or more times within a few electrical cycles after they have tripped. This practice improves the continuity of service to Chugach customers by allowing temporary faults to clear before primary protective devices operate to de-energize all or portions of the circuit.

The protective relays specified by Chugach for parallel generation interfaces are intended to disconnect the producer's generation from faulted or isolated lines before reclosing occurs.

To ensure that Chugach's system protection equipment operates properly, the producer's protective equipment shall be set to sense Chugach system fault conditions and discontinue parallel operation with Chugach before Chugach automatic circuit reclosing occurs. **The producer shall not resume parallel operation until:**

- A) A period of five (5) minutes has transpired following the initial sensing of a fault condition, or,
- B) Chugach provides authorization to resume parallel operation.

Section 500 - Interconnected Operating Requirements**512 Interconnection Equipment Maintenance**

The producer shall maintain its interconnection and interface equipment in good order. Chugach reserves the right to inspect all such equipment at any time. Chugach also reserves the right to inspect the producer's facilities whenever it appears that the producer is operating in a manner unacceptable or hazardous to the integrity of the Chugach system, or outside of the operating limits specified in these guidelines or contained in any interconnection agreements.

The producer is responsible for ensuring and maintaining the safe and operational condition of all interconnection equipment located on the producer's side of the interconnection. Maintenance records, procedures, and results shall be made available for Chugach's review and records as required. Depending upon the characteristics and utilization characteristics of the facility, Chugach may elect to observe and inspect maintenance work in order to assure the safety and integrity of the interconnection. For large generation installations, specific scheduling and interval requirements for interconnection equipment maintenance may be formulated within interconnection agreements. Such maintenance requirements may be based on equipment duty, number of operations, ambient conditions, etc. The producer shall coordinate and schedule maintenance on interconnection equipment with Chugach to ensure the safety of Chugach personnel and to minimize the disruption of electric service to Chugach customers.

513 Protective Systems Functional Testing

The producer's facilities shall meet the testing criteria contained in IEEE Std. 1547.1 "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems" and the producer shall grant Chugach the right to observe functional testing of the producer's facilities.

Periodic functional testing of protective equipment (i.e., circuit breakers, switches, disconnect devices, protective relaying, etc.) shall be defined and coordinated with Chugach within an interconnection agreement between Chugach and the producer. Generally, functional testing of protective relay settings and interconnection circuit breaker operations shall be performed by the producer every three (3) years. Documented test results shall be provided to Chugach within five (5) working days after the completion of tests. The producer is responsible to ensure that protective relaying and control systems have available and accessible sensing input terminals or test ports, in order to perform and validate functional testing (see Section 414: Protection & Control System Testing Conformance). The producer shall grant Chugach the right to review and modify the functional testing requirements, as necessary, during the life of the facility.

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APPENDICES

APPENDIX A

APPLICATION FOR INTERCONNECTION:
CLASS A - NET FACILITIES

CHUGACH ELECTRIC ASSOCIATION, INC.
Interconnection Application for Non-Utility Generation:
Class A - NET Facilities

Who Should File This Application: Any customer wishing to operate electrical generation facilities, rated up to 25 kVA, interconnected with the Chugach electric power system, and meets the eligibility requirements of the State of Alaska Net Metering Standards, 3 AAC 50.920. This application should be completed as soon as possible and returned to Chugach's Engineering Division Service Extension Coordinator in order to begin processing the request.

Application Use: This application is used by Chugach to perform an interconnection study to determine the specific interconnection requirements at the applicant's proposed facility location. Should additional information be required to perform this study, the applicant shall provide such as requested by Chugach.

Further Action: The preliminary interconnection study performed by Chugach will determine the need for submittal of a final interconnection application for Non-Utility Generation.

OWNER/APPLICANT INFORMATION		
Company :		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
PROPOSED LOCATION OF GENERATING FACILITIES AND INTERCONNECTION		
Address:		
PROJECT DESIGN / ENGINEERING		
Company:		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
ELECTRICAL CONTRACTOR		
Company:		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
GENERATOR DATA		
Manufacturer:		Model:
Type (Synchronous, Induction, Converter, etc.):		Phases (1 or 3):
Rated Output:	Windings (Delta, Wye):	Frequency:
Rated Power Factor (%):	Rated Voltage (Volts):	Rated Current (Amperes):
Prime Energy Source (natural gas, steam, hydro, etc.):		
ESTIMATED LOAD INFORMATION		
The following information will be used to help properly design the applicant's interconnection. This information is not intended as a commitment or contract for billing purposes.		
Minimum anticipated load (generation not operating) kW:		kVA:
Maximum anticipated load (generation not operating) kW:		kVA:
ESTIMATED CONSTRUCTION START/COMPLETION DATES		
Start Date:		Completion Date:

APPENDICES

APPENDIX B

APPLICATION FOR INTERCONNECTION:
CLASS A AND B FACILITIES

CHUGACH ELECTRIC ASSOCIATION, INC.
Interconnection Application for Non-Utility Generation:
Class A and B Facilities

Who Should File This Application: Any customer wishing to operate electrical generation facilities, rated up to 100 kVA, interconnected and operating in parallel with the Chugach electric system. This application should be completed as soon as possible and returned to Chugach's Engineering Division Service Extension Coordinator in order to begin processing the request.

Application Use: This application is used by Chugach to perform an interconnection study to determine the specific interconnection requirements at the applicant's proposed facility location. Should additional information be required to perform this study, the applicant shall provide such as requested by Chugach.

Further Action: The preliminary interconnection study performed by Chugach will determine the need for submittal of a final interconnection application for Non-Utility Generation.

OWNER/APPLICANT INFORMATION		
Company :		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
PROPOSED LOCATION OF GENERATING FACILITIES AND INTERCONNECTION		
Address:		
PROJECT DESIGN / ENGINEERING		
Company:		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
ELECTRICAL CONTRACTOR		
Company:		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
GENERATOR DATA		
Manufacturer:		Model:
Type (Synchronous, Induction, Converter, etc.):		Phases (1 or 3):
Rated Output:	Windings (Delta, Wye):	Frequency:
Rated Power Factor (%):	Rated Voltage (Volts):	Rated Current (Amperes):
Prime Energy Source (natural gas, steam, hydro, etc.):		
ESTIMATED LOAD INFORMATION		
The following information will be used to help properly design the applicant's interconnection. This information is not intended as a commitment or contract for billing purposes.		
Minimum anticipated load (generation not operating) kW:		kVA:
Maximum anticipated load (generation not operating) kW:		kVA:
ESTIMATED CONSTRUCTION START/COMPLETION DATES		
Start Date:		Completion Date:

Form No. MLP-1A-02 (7/2010) Interconnection Application for Non-Utility Generation - Class A and B

APPENDICES

APPENDIX C

APPLICATION FOR INTERCONNECTION:
CLASS C AND D FACILITIES

CHUGACH ELECTRIC ASSOCIATION, INC.
Interconnection Application for Non-Utility Generation:
Class C and D Facilities

Who Should File This Application: Any customer wishing to operate electrical generation facilities, rated 100 kVA to 5000 kVA, interconnected and operating in parallel with the Chugach electric system. This application should be completed as soon as possible and returned to Chugach's Engineering Division, Service Extension Coordinator in order to begin processing the request.

Application Use: This application is used by Chugach to perform an interconnection study to determine the specific interconnection requirements at the applicant's proposed facility location. Should additional information be required to perform this study, the applicant shall provide such as requested by Chugach.

Design Information Submittal: In addition to the items listed in this form, please include the design information submittal items as outlined in Section 301: Design Documentation and Information of Chugach's Interconnection and Operating Requirements for Non-Utility Generation.

OWNER/APPLICANT INFORMATION		
Company :		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
PROPOSED LOCATION OF GENERATING FACILITIES AND INTERCONNECTION		
Address:		
PROJECT DESIGN / ENGINEERING		
Company:		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
ELECTRICAL CONTRACTOR		
Company:		
Representative:	Phone Number:	Fax Number:
Title:		
Mailing Address:		
ESTIMATED LOAD INFORMATION		
The following information will be used to help design the Chugach-Producer interconnection. This information is not intended as a commitment or contract for billing purposes.		
Minimum anticipated load (generation not operating) _____ kVA _____ Duration (indicate hours, minutes, etc.)		
Maximum anticipated load (generation not operating) _____ kVA _____ Duration (indicate hours, minutes, etc.)		

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(Complete all applicable items. Copy this page as required for additional generators.)			
SYNCHRONOUS GENERATION DATA			
Unit Number:		Total number of units with listed specifications on site:	
Manufacturer:			
Type:	Manufacture Date:	Windings (Delta, Wye):	
Serial Number (each):			
Phases: 1 or 3	Speed (RPM):	Frequency (Hz):	
Rated Output (each unit) Kilowatt:		Kilovolt-Ampere:	
Rated Power Factor (%):	Rated Voltage (Volts):	Rated Current (Amperes):	
Field Voltage (Volts):	Field Current (Amperes):	Motoring Power (kW):	
Synchronous Reactance:	Xd :	Xq:	% on kVA base
Transient Reactance:	Xd':	Xq':	% on kVA base
Subtransient Reactance:	Xd'':	Xq'':	% on kVA base
Zero Sequence Reactance:	Xo:	% on	kVA base
Negative Sequence Reactance:	X2:	% on	kVA base
Neutral Grounding Impedance:	Rn:	Xn:	% on kVA base
Inertia constant, H (joules/VA):			
I2t or K (heating time constant):			
Exciter data:			
Governor data:			
Additional Information:			
INDUCTION GENERATOR DATA			
Unit Number:		Total number of units with listed specifications on site:	
Manufacturer:			
Type:	Manufacture Date:	Windings (Delta, Wye):	
Serial Number (each):	Speed (RPM):		
Rotor Resistance, Rr, (Ohms):	Stator Resistance, Rs, (Ohms):		
Rotor Reactance, Xr, (Ohms):	Stator Reactance, Xs, (Ohms):		
Magnetizing Reactance, Xm, (Ohms):			
Design Letter:	Frame Size:		
Exciting Current:	Temp Rise (deg C):	H constant, (joules/VA):	
Rated Output (kW):			
Reactive Power Required	kVAR (no load):	kVAR (full load):	
If this is a wound-rotor machine, describe any external equipment to be connected (resistor, rheostat, power converter, etc.) to rotor circuit, and circuit configuration. Describe ability, if any, to adjust generator reactive output to provide power system voltage regulation.			
Additional Information:			

PRIME MOVER (Complete all applicable items)				
Unit Number:		Type:		
Manufacturer:				
Serial Number:		Manufacture Date:		
Rated Horsepower (H.P.):		Max. Horsepower (H.P.):		Inertia constant, (lb.-ft ²):
Energy Source (fuel; hydro, steam, natural gas, etc.):				
TRANSFORMER (If applicable)				
Manufacturer:		kVA:		
Date of Manufacture:		Serial No.		
High Voltage: kV		Connection: delta wye		Neutral solidly grounded?
Low Voltage: kV		Connection: delta wye		Neutral solidly grounded?
Transformer Impedance, Z:		% on		kVA base
Transformer Resistance, R:		% on		kVA base
Transformer Reactance, X:		% on		kVA base
Neutral Grounding Impedance:		Rn :	Xn :	% on kVA base
POWER CONVERTER DATA (If applicable)				
Manufacturer:		Model:		
Date of Manufacture:		Serial No.		
Rated Power Factor (%):		Rated Voltage (Volts):		Rated Current (Amperes):
Converter Type (Ferro resonant, step, pulse-width modulation, etc.):				
Type of commutation: forced line		Minimum Short Circuit Ratio required:		
Minimum voltage for successful commutation:				
Current Harmonic Distortion:		Maximum Individual Harmonic (%):		
		Maximum Total Harmonic Distortion (%):		
Voltage Harmonic Distortion:		Maximum Individual Harmonic (%):		
		Maximum Total Harmonic Distortion (%):		
Describe capability, if any, to adjust reactive output to provide voltage regulation:				
NOTE: Attach all available calculations, test reports, and oscillographic prints showing inverter output voltage and current waveforms.				
POWER CIRCUIT BREAKER (If applicable)				
Manufacturer:		Model:		
Rated Voltage (kilovolts):		Rated Ampacity (Amperes):		
Interrupting Rating (Amperes):			BIL Rating:	
Interrupting Medium (vacuum, oil, gas, etc.)			Insulating Medium (vacuum, oil, gas, etc.)	
Control Voltage (Closing):		(Volts)	AC	DC
Control Voltage (Closing):		(Volts)	AC	DC Battery Charged Capacitor
Close Energy:		Spring	Motor	Hydraulic Pneumatic Other
Trip Energy:		Spring	Motor	Hydraulic Pneumatic Other
Bushings Current Transformer (Max ratio):			Relay Accuracy Class:	
Multi Ratio? No Yes If yes, available taps:				
ESTIMATED CONSTRUCTION SCHEDULE				
Start Date:			Completion Date:	

MISCELLANEOUS (Use this area and any additional sheets for applicable notes and comments).

SIGNATURE AREA

I agree to provide Chugach Electric Association, Inc. (Chugach) with any additional information, as requested or required, to process this application. I also agree to comply with Chugach's regulations and tariffs as amended. I certify that I am the owner, lessee, tenant, or agent of the premise where the service has been applied. I agree to provide safe and unobstructed access to premises for Chugach employees, pay applicable rates and abide by the terms and conditions as prescribed by the tariff for all present and future utility service.

The conditions under which a deposit will be required or waived are set forth in Chugach's operating tariff. I declare the information provided is true, accurate, and complete to the best of my knowledge and belief. The information contained in the application has been voluntarily submitted for the purpose of receiving electric service, and is understood upon presentation, this application becomes the property of Chugach.

Applicant Signature

Printed Name and Title

Date

The information submitted in this application will remain active and valid for a period of 12 months from the date the Application is signed. If, after this 12-month period, Chugach does not receive a request for authorization to operate in parallel or reasonable proof that the project is going forward, then the applicant will be considered as "withdrawn" and the application will be cancelled.

Information below to be filled out by Chugach Representative

Chugach Representative:

Phone:

Name of Project:

Chugach service point location (attach service map if available):

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APPENDICES

APPENDIX D. CODES AND STANDARDS

APPENDICES

Codes and Standards

This appendix is a partial list of codes and standards referenced in the Interconnection Requirements.

The National Fire Protection Association:

- The National Electrical Code (NEC), (NFPA-70)

Institute of Electrical and Electronics Engineers (IEEE)

- ANSI/IEEE C37.90, IEEE Standard for Relay Systems Associated with Electric Power Apparatus.
- ANSI/IEEE C37.95, IEEE Guide for Protective Relaying of Utility-Consumer Interconnections.
- ANSI C62.1, Surge Arresters for AC Power Circuits.
- ANSI C84.1, American National Standards for Electric Power Systems and Equipment Ratings (60 Hertz). Establishes nominal voltage ratings and operating tolerances for 60 Hz electric power systems from 100 V through 230 kV.
- IEEE Std. 142, IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems.
- IEEE Std. 242 Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems.
- IEEE 519, IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems.
- ANSI/IEEE Std. 929, Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.
- IEEE 1547, Standard for Distributed Resources Interconnected with Electric Power Systems.
- IEEE P1547.1, Standard for Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems.
- IEEE P1547.2, Application Guide for IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems.
- IEEE P1547.3, Guide for Monitoring Information Exchange and Control of DR Interconnected with Electric Power Systems,
- IEEE P1561, Draft Guide for Sizing Hybrid Stand-Alone Energy Systems.

APPENDICES

Codes and Standards

National Electrical Testing Association (NETA)

NETA promotes the independent electrical testing industry by establishing testing standards and specifications and training and certifying testing technicians.

National Electrical Manufacturers Association (NEMA)

A nonprofit trade association supported by the manufacturers of electrical apparatus and supplies. NEMA is engaged in standardization to facilitate understanding between the manufacturers and users of electrical products.

Underwriters Laboratories (UL)

UL is a private, not-for-profit organization that has evaluated products, materials and systems in the interest of public safety since 1894. UL has become the leading safety testing and certification organization in the U.S., and its label is found on products ranging from toaster ovens to inverters to some office furniture. Although UL writes the testing procedures, other organizations may do the actual testing and certification of specific products. In addition to UL, other testing labs such as ETL SEMKO (ETL), and the Canadian Standards Association (CSA) are widely recognized listing agencies for electrical components.

- UL Standard 1741, Inverters, Converters and Controllers for Use in Independent Power Systems, covers requirements and testing procedures for inverters, converters, charge controllers, and output controllers intended for use in standalone (not grid connected) or utility-interactive (grid connected) power systems. Utility interactive inverters and converters are intended to be installed in parallel with an electric distribution system to supply common loads. UL 1741 comports to IEEE Std. 929 to cover inverters used for sources other than photovoltaics and to cover controllers that might provide similar capabilities for synchronous and induction machines.
- UL Standard 200, Standard for Safety Stationary Engine Generator Assemblies, covers stationary engine generator assemblies, including micro-turbines, rated at 600 volts or less.

Glossary

For industry standard definitions of electric industry terminology not contained in this glossary, please refer to the IEEE Standard Dictionary of Electrical and Electronic Terms, IEEE Standard 100.

A

Abnormal Voltage: Voltage that is outside of the standard Chugach nominal voltage level.

AC: The abbreviation for alternating current.

Access, Accessible: “Access” means capability of being reached quickly for operating, reading, repairing, removing, testing, inspecting, or installing meters, transformers, switches, conductors, electrical enclosures, and related equipment without requiring those for whom access is required to climb over or remove obstacles, to unlock doors, to dismantle fences or gates, and so forth. Accessible equipment is not guarded by architectural enhancements, dogs, elevation, locks, parked vehicles, structures, or other impediments.

Active Anti-Islanding Scheme: A control scheme installed within a generating facility that senses and prevents the formation of an unintended island.

Ampere (Amp): The practical unit of electric current. One ampere is the current caused to flow through a resistance of one ohm by one volt.

ANSI: American National Standards Institute

Applicant: The entity submitting an application for interconnection pursuant to these requirements.

Application: A Chugach-approved standard form submitted to Chugach for interconnection of a generating facility.

Approved: As used in these requirements, the term “approved” means authorized, sanctioned, permitted, or specified by Chugach. In most cases, the approval will be in written or published form.

Area Electric Power System (Area EPS): an electric power system that serves Local EPSs. In Chugach’s service area, Chugach is the Area EPS.

Automatic: Self-acting, operated by its own mechanism when actuated by some impersonal influence as, for example, a change in current strength; not manual; without personal intervention.

Automatic Circuit Recloser:

(A) A self-controlled device for automatically interrupting and reclosing an alternating current circuit with a predetermined sequence of opening and reclosing, followed by resetting, hold closed or lockout (ANSI C37.60).

(B) A relay that controls the automatic reclosing and locking out of an AC circuit interrupter.

Automatic Control: An arrangement of electrical controls which provide for opening and/or closing in an automatic sequence and under predetermined conditions; the switches which then maintain the required character of service and provide adequate protection against all usual operating emergencies.

Available Fault Contribution: The maximum current that can be supplied to a fault (short-circuit).

Glossary

B

Back Feed: A condition where a device introduces voltage and/or current onto the system that is normally the source.

Bi-directional Metering: Metering of the power delivered by Chugach to the customer and the power produced by the customer and received by Chugach. Bi-directional meters deployed by Chugach are solid state, billing quality devices meeting the requirements of ANSI C12.1 and ANSI C12.10, and are equipped with separate registers for delivered power and received power. See Net Energy Metering.

Block-Loaded: Loading of a generator in discrete steps to a specific power level.

Breaker: See 'Circuit Breaker'.

C

Capacity:

- (1) The amount of current, in amperes of electric current a wire will carry without becoming unduly heated;
- (2) The capacity of a machine, apparatus, or device, typically given in volt-amperes (VA) or watts, the maximum of which it is capable under existing service conditions;
- (3) The load for which a generator, turbine, transformer, transmission circuit, apparatus, station, or system is rated.

Certification; Certified; Certificate: The documented results of a successful Certification Test.

Certified Equipment: Equipment that has passed all required Certification Tests.

Chugach: Chugach Electric Association, Inc.

Circuit: An interconnection of electrical elements.

Circuit Breaker: A switching device capable of making, carrying, and breaking currents under normal circuit conditions and also making, carrying for a specified time, and breaking currents under specified abnormal conditions, such as those of a short circuit. As it relates to interconnected operation, this is the "paralleling device" referenced in IEEE Standard 1547.

Clearance (Working): As it relates to Chugach's electric power system, a clearance is a condition achieved when all known hazardous energy sources are isolated, a zero energy state is present, energy control points are locked, or physical barriers are in place and the control points are properly red-tagged. A clearance ensures the isolation of all electrical energy sources and/or provides a mechanical block of other energy sources from personnel when equipment or systems are taken out of service for inspection, maintenance, modification or repairs. Clearances can only be issued by Chugach's Distribution and Power Dispatch Center.

Glossary

Cogeneration Facility: Equipment used to produce electric energy and forms of useful thermal energy (such as heat or steam) used for industrial, commercial, heating, or cooling purposes through the sequential use of energy.

Control and Protection: “Control” refers to the methods and means of governing the performance of the generating facilities. “Protection” refers to the system of devices used to detect abnormal operating conditions and to initiate tripping of apparatus.

Converter: A machine or device for changing alternating current (AC) power to Direct Current (DC) power or vice versa, or from one frequency to another.

Current: See ampere.

D

DC: The abbreviation for direct current.

Dedicated Transformer; Dedicated Distribution Transformer: A transformer that provides electricity service to a single customer whether or not that customer has non-utility generation facilities.

Demand: The rate of consumption of energy, usually defined as the average rate over a specified interval of time. Demand may be expressed in kilowatts, kilovolt-amperes, kilovars, or other suitable units.

Demand, Maximum: The highest demand measured over a selected period of time, such as one month. A meter equipped with a demand register measures the maximum average power over an interval of time as a basis for billing.

Direct Transfer Trip: Transfer of a signal to trip circuit breakers at the remote end of a line.

Disconnect Device: A device whereby the conductors of a circuit can be disconnected from their source of supply (IEEE 100-1984).

Distortion Factor (Harmonic Factor): “Distortion Factor” is the ratio of the root mean square of the harmonic content to the root-mean-square of the fundamental quantity, expressed as a percent of the fundamental.

Distributed Generation (DG): Electric generation facilities that connect to Chugach’s electric power system through a point of common coupling (PPC).

Distributed Resources (DR): Sources of electric power that are not directly connected to a bulk power transmission system. DR includes both generators and energy storage technologies.

Distribution Service: All services required by, or provided to, a customer pursuant to the approved tariffs of Chugach.

Glossary

Distribution System: The part of Chugach's system including substations, electrical wires, equipment, and other facilities which operate at voltages suitable for delivery of service directly to customers.

Disturbance: A planned event (e.g., fault, sudden loss of load or generation, breaker operations, etc.) that produces an abnormal system condition.

Droop: The slope of the prime mover's speed-power characteristic curve. The speed droop, typically five (5) percent, enables interconnected generators to operate in parallel with stable load division.

E

Electric Generator: A machine that transforms mechanical power into electric power. (Refer to Generator).

Electric Power System (EPS): The electric power system owned and operated by Chugach.

Electrical Supply Grid: The system of interconnected generation stations, transmission lines, and distribution systems used to deliver electric power.

Emergency: An. "emergency" exists when imminent danger to life is threatened or significant and substantial damage to Chugach, Municipal, or personal property is imminent. See System Emergency.

Energize: To apply voltage to a circuit or piece of equipment; to connect a de-energized circuit or piece of equipment to a source of electric energy.

External Disconnect Switch: An interconnection disconnect device placed at a location external to the customer's premises. The term is usually associated with a Class A-NET metering facility. See Interconnection Disconnection Device.

F

Fault: An unintentional short circuit on an electrical system, between phases or between phase(s) and ground, characterized by high currents and low voltages.

Fault Current: A current that flows from one conductor to ground or another conductor, owing to an abnormal connection (including an arc) between the two.

Feeder: A set of conductors originating at a main distribution center or substation, supplying one or more distribution branch circuits.

Flicker: Impression of fluctuating brightness or color, occurring when the frequency of the observed variation lies between a few hertz (cycles per second) and the flicker threshold (the frequency of intermittent stimulation of the eye at which flicker disappears).

Glossary

Forced Outage: Any outage resulting from electrical equipment failure, control systems malfunction, a design defect, operator error, or failure of mechanical systems related to the electrical output of a generating facility. A breakdown of the mechanical or electrical equipment that fully or partially curtails the electrical output of the generating facility.

Frequency: The number of cycles occurring in a given interval of time (usually 1 second) in an electric current. Frequency is commonly expressed in hertz.

Frequency Deviation: A change in frequency from 60 hertz caused by a temporary imbalance of generation and load.

Fundamental Voltage: As used in these requirements, the “fundamental voltage” is the voltage level at which an inverter-based interconnection system is designed to operate. The use of the term “fundamental voltage” is based on information presented in IEEE Std. 1547, Part 5.1.2.C.

G

Gang-Operated: A multiple pole switch in which all poles are operated simultaneously.

Generating Facility: A facility wherein electric energy is produced from some other form of energy by means of a suitable converting apparatus, including the generator and all associated equipment owned, maintained, and operated by the producer.

Generator: The physical electrical equipment that produces electric power.

Generator Output Metering: Metering of the gross output of electrical energy and/or power produced by a generator.

Generator Reactive Power Capability: The amount of reactive power (VARs) that a generator can produce or absorb from the electric system to which it is connected.

Grid: A term used by an electric utility to refer to its transmission and/or distribution network.

Gross Nameplate Rating: The total gross generating capacity of a generator or generating facility as designated by the manufacturer of the generator(s).

Ground: A conducting connection, whether intentional or accidental, between an electric circuit or equipment and earth.

Grounding Conductor: A conductor used to connect any equipment device, or wiring system, with a grounding electrode or electrodes.

Grounding Electrode: A conductor embedded in the earth, used for maintaining ground potential on conductors connected to it and for dissipating current conducted to it into the earth.

Ground Fault: An unintentional electric current flow between one or more energized conductors and the ground.

Glossary

H

Harmonic: A sinusoidal component of a periodic wave or quantity having a frequency that is an integral multiple of the fundamental frequency.

Harmonic Distortion: Periodic distortion of the sine wave. See Distortion Factor.

Hertz (Hz): The term denoting cycles per second. See Frequency.

Host Load: Electrical power that is consumed by the customer at the property on which the generating facility is located.

Hz: Hertz

I

IEEE: Institute of Electrical and Electronics Engineers.

Instrument Transformer: A transformer that reproduces in its secondary circuit, in a definite and known proportion, the voltage or current of its primary circuit, with the phase relationship substantially preserved.

Interconnection: The physical electrical connection for parallel operation of the producer's generating facility with the Chugach electric system.

Interconnection Disconnect Device: An electrical disconnect device used to isolate non-utility generation equipment from Chugach's electric power system. The interconnection disconnect device serves as a visible open which is critical to establishing working clearances for maintenance and repair work by utility personnel. Where an interconnection disconnect device is external to a customer's premises, it is often referred to as the external disconnect switch. See External Disconnect Switch.

Interconnection Facilities: The electrical wires, switches and related equipment that are required in addition to the facilities required to provide electric distribution service to a customer to allow the interconnection of a generating facility to the electric power system. Interconnection facilities may be integrated into a generating facility or provided separately. Interconnection facilities may be connected to either side of a point of common coupling, as appropriate to their purpose and design.

Interconnection Study: A study to establish the requirements for interconnection of a generating facility.

Interrupting Capacity: The amount of current a switch or circuit breaker can safely interrupt.

Interruption: The loss of electrical supply to one or more consumers or facilities.

Inverter: A device that converts direct current (DC) power to alternating current (AC) power.

Island, Islanded: A condition in which a portion of the Chugach electric power system is, or becomes, separated from the rest of the system, and the separated portion is energized by a local non-utility generator. See Non-islanding.

Glossary

K

KV (kV): The common abbreviation for kilovolts (equal to 1,000 volts). See Volt.

KVA (kVA): The common abbreviation for kilovolt-ampere (equal to 1,000 volt-amperes). The term “kVA” is frequently used to indicate the rated capacity of electrical equipment. See Volt-Ampere.

KVAR (kVAR): The common abbreviation for kilovolt-amperes reactive (equal to 1,000 volt-amperes reactive). See Reactive Volt-Ampere.

KW (kW): The common abbreviation for kilowatts (equal to 1,000 watts). See Watt.

KWH (kWh): The common abbreviation for kilowatt-hours (equal to 1,000 watt hours). See Watt-Hour.

L

Leading Power Factor: A “leading power factor” occurs when reactive power flows in the opposite direction of real power. A generator with a leading power factor supplies real power (watts) while absorbing reactive power (VARs). Conversely, a load having a leading power factor absorbs real power while supplying reactive power.

Letter of Agreement: An agreement between Chugach and a producer that gives certain rights and obligations to effect or end an interconnection.

Line: As used in these requirements, a “line” is the set of conductors of an electric transmission or distribution circuit. Single-phase lines at primary voltage use two conductors in a typical circuit. Three-phase lines use either three conductors (delta) or four conductors (wye) in a typical circuit.

Line Section: That portion of Chugach’s electric power system connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line.

Log: A computer file, book, or loose-leaf sheets for recording all station operations, clearances, readings, ratio reports, and other pertinent active daily data.

Losses: Energy that is dissipated before it accomplishes useful work.

M

Manual Disconnect Switch: A “manual disconnect switch” is a device used to disconnect a circuit from the source of power. A manual disconnect switch is operated non-automatically by the direct action of a person.

MW: The common abbreviation for megawatts (equal to 1,000,000 watts). See Watt.

Metering: The measurement and recording of electrical energy (watt-hours) at a point specified by these requirements. See Bi-directional Metering, Generator Output Metering, and Net Energy Metering.

Glossary

Metering Equipment: All equipment related to the metering of electrical energy either delivered to, or received from, the customer and/or producer, including, but not limited to meter socket enclosures, service termination enclosures, CT cabinets, meter disconnects, and any other equipment necessary for utility-style meters.

MOA: Municipality of Anchorage

Momentary Parallel Operation: The interconnection of a generating facility to Chugach's electric power system for one second (60 cycles) or less.

N

Nationally Recognized Testing Laboratory (NRTL): A laboratory accredited to perform the certification testing requirements under these guidelines.

NEC: National Electrical Code

NESC: National Electrical Safety Code

Neutral: A system conductor other than a phase conductor that provides a return path for current to the source. In Chugach's system, neutral conductors are multi-grounded conductors and are typically at zero potential with reference to the earth.

Net Energy Metering: Metering for the receipt and delivery of electricity between a producer and Chugach pursuant to RCA rules. Over a given time frame (typically a month) the difference between these two values yields either net consumption or surplus. For the purposes of these requirements, net energy metering and bi-directional metering are synonymous terms. See Bi-directional Metering.

Net Nameplate Rating: The Gross Nameplate Rating minus the consumption of electrical power of a generator or generating facility as designated by the manufacturer of the generator.

Network Service: More than one electrical feeder providing distribution service at a point of common coupling.

Non-Export; Non-Exporting: Designed to prevent the transfer of electrical energy from the producer to Chugach.

Non-Islanding: Intended to prevent the existence of an island. Non-islanding devices must be designed to detect and disconnect from an unintended island. Reliance solely on under/over voltage and frequency trip is not considered sufficient to qualify as non-islanding. See Island, Islanded.

Non-Utility Generation: Generation facilities that are owned and operated by a person or company other than an electric utility.

Glossary

O

Ohm: The standard unit of resistance of an electric circuit; generally the resistance to the flow of electric current.

One-Line Diagram: An electrical schematic drawing which represents the phases of a three-phase electrical system as a single line.

Open-Transition Mode: A method of switching generation from one system to another without connecting the two systems. This typically is accomplished by employing a transfer switch with break before make contacts (breaks contact with one system before making contact to the other system).

Outage: A condition existing when a line or a station is de-energized.

Output: The energy delivered by a machine or piece of apparatus during its operation.

Overvoltage: Voltage higher than that desired or higher than that for which equipment in question is designed.

P

Paralleling Device: The switchgear or circuit breaker, which is controlled by the producer's, interconnection control system. This is the producer's device, which establishes the physical electrical connection for parallel operation with the Chugach system.

Parallel Operation: The operation of a customer owned generator while electrically connected to the Chugach electric grid. Under this condition power can either flow from the Chugach system to the generating facility or vice versa. Parallel operation may be solely for the customer's operating convenience or for the purpose of delivering power to the Chugach electric power system.

Point of Common Coupling (PCC): The transfer point for electricity between the electrical conductors of Chugach and the electrical conductors of the producer.

Point of Interconnection: The point where the load or producer's conductors or those of their respective agents meet the Chugach electric power system (point of ownership change).

Power, Active: The time average of the instantaneous power over one period of the wave. For sinusoidal quantities in a two-wire circuit, it is the product of the voltage, the current, and the cosine of the phase angle between them. For non-sinusoidal quantities, it is the sum of all the harmonic components, each determined as above. In a polyphase circuit it is the sum of the active powers of the individual phases. See Watt.

Power, Apparent: The product of the root-mean-square current and root-mean-square voltage for any waveform. For sinusoidal quantities, apparent power is the square root of the sum of the squares of the active and the reactive powers. See Volt-Ampere.

Glossary

Power, Reactive: For sinusoidal quantities in a two-wire circuit, reactive power is the product of the voltage, the current, and the sine of the phase angle between them with the current taken as reference. With non-sinusoidal quantities, it is the sum of all the harmonic components, each as determined above. In a polyphase circuit, it is the sum of the reactive powers of the individual phases. See Reactive Volt-Ampere.

Power, Real: The term “real power” is synonymous with the term “active power”. Real power or active power is measured in watts (W), kW, or MW. Real power used or transmitted over time is measured in kilowatt-hours (kWh) or megawatt-hours (MWh). See Power, Active.

Power Factor: The ratio of active power to apparent power. The power factor is considered to be at unity when the voltage and current are in phase.

Primary Distribution System: That part of Chugach’s electric power system that distributes power from Chugach’s substations to its distribution transformers at medium voltage levels.

Producer: One who produces electrical power and energy. In the context of these requirements, the term “producer” typically refers to the owner and/or operator of non-utility generation.

Protection: All of the protective relays and other equipment which is used to open the necessary circuit breakers to clear lines or equipment when faults or unacceptable operating conditions develop within the electric power system.

Protective Devices: Devices used to protect equipment during abnormal conditions. This includes protective relays, whose function is to detect power system conditions of an abnormal or dangerous nature. It also includes circuit breakers or other interrupting devices used to protect the generator, associated equipment, and the electrical system to which the generation is interconnected.

Protective Relay: A device whose function is to detect system faults, defective lines or apparatus, or other power system conditions of an abnormal or dangerous nature and to initiate appropriate control circuit action.

R

RCA: Regulatory Commission of Alaska.

Reactive Volt-Ampere: The out-of-phase component of the total volt-amperes in a circuit which includes inductive or capacitive reactance. In an AC circuit, reactive volt-amperes are the product of the total volt-amperes and the sine of the angle between the current and voltage. The unit of reactive volt-ampere is the var. VARs may be considered as the imaginary part of apparent power, or the peak power flowing into a reactive load. By convention, positive reactive power is “absorbed” by an inductance and “generated” by a capacitance. Reactive power transferred over time is measured in VAR-hours (VARh). See Power, Reactive.

Readily Accessible: See Access, Accessible.

Real Time (data): Data reported as it happens, with reporting (update) intervals no longer than a few seconds.

Glossary

Reclose: To again close a circuit breaker after it has opened by relay action.

Reconductoring: Replacing the conductor in an existing line. Typically, this involves replacement within higher capacity conductor, or installing an additional conductor in a line.

Relay: A device that is operative by a variation in the condition of one electric circuit to affect the operation of another device in the same or in another electric circuit.

Resonant Overvoltages: Overvoltages caused by harmonics that correspond to a natural resonant frequency of the system.

S

Secondary System: The “secondary system”, also referred to as the secondary distribution system, is that part of the electric power system consisting of the secondary output of step-down transformers, service conductors, and utility metering equipment.

Secondary Network: A network supplied by several primary feeders suitably interlaced through the area in order to achieve acceptable loading of the transformers under emergency conditions and to provide a system of extremely high service reliability. Secondary networks usually operate at 600 V or lower.

Separate System: A generating system which has no capability or possibility of connecting to, and operating in parallel with, the Chugach electric power system.

Setting (Protective Relay): The values of current, voltage, or time at which a relay is adjusted.

Shared Secondary: The condition which occurs when a producer interconnects with Chugach on the secondary side of a distribution transformer, and other customers may also be connected to the secondary side of the same transformer.

Short Circuit: An abnormal connection (including an arc) of relatively low impedance, whether made accidentally or intentionally, between two points of different potential (IEEE 100-1984).

Short Circuit Contribution Ratio (SCCR): The ratio of a generating facility’s short circuit contribution to Chugach’s short circuit contribution for a three-phase fault at the high voltage side of the distribution transformer connecting that generating facility to Chugach’s electric power system.

Single-Line Drawing: See One-Line Diagram.

Solid-State Equipment: Equipment that contains electronic components that do not use vacuum or gas filled tubes. Discrete semiconductors (e.g., transistors, diodes, etc.), integrated circuits, or other static components such as resistors and capacitors are used for the electrical functioning of the equipment. Note: Equipment that uses a cathode ray tube for display purposes, such as a television or computer monitor, may still be considered solid-state if the other components within the equipment are solid-state.

Glossary

Stabilization, Stability: The return to normalcy of Chugach's electric distribution system, following a disturbance. Stabilization is usually measured as a time period during which voltage and frequency are within acceptable ranges.

Stiffness Ratio: The ratio of system available fault current at the point of interconnection to the full load rated output current of the installation. Refer to IEEE Std. 1547.2-2008, Part 3.1.7 and 3.1.8 for information regarding stiffness ratio.

Supervisory Control: A system by which equipment is operated by remote control at a distance by means of some type of code transmitted by wire or electronic means.

Switch: A device for making, breaking, or changing the connections in an electric circuit.

System: The entire generating, transmitting, and distributing facilities of an electric supply utility.

System Emergency: An actual or imminent condition or situation, which jeopardizes the Distribution System Integrity. See Emergency.

System Integrity: The condition under which Chugach's electric power system is deemed safe and can reliably perform its intended functions in accordance with the policies and procedures of Chugach.

T

Telemetry (Telemetering): Measurement with the aid of a communication channel that permits the measurement to be interpreted at a distance from the primary detector.

Total Harmonic Distortion (THD): This term can be used to define either the voltage or the current distortion factor. Total harmonic distortion is a measurement of all the harmonic distortion present on a particular circuit or piece of equipment. See Distortion Factor.

Transfer Trip: A form of remote trip in which a communication channel is used to transmit the trip signal from the relay location to a remote location.

Transformer: A "transformer" is a device which transfers electrical energy from one electric circuit to another at the same frequency through electromagnetic induction usually with changes of value of the voltage and current. Typically, transformers are used to transform the high voltage of a utility's electric power system to a lower utilization voltage level. See Step-Down Transformer. Transformers are also used to transform the low and medium voltage output of generators to a high voltage level for transmission purposes. See Step-Up Transformer.

Transformer, Primary Side: The "primary side of a transformer" is the source or input side and is usually energized at a high or medium voltage level.

Transformer, Secondary Side: The "secondary side of a transformer" is the load or output side and is usually energized at a low voltage level.

Transformer, Step-Down: A "step-down transformer" is a transformer with high or medium voltage input on the primary side which steps down the voltage to a lower utilization level.

Glossary

Transformer, Step-Up: A “step-up transformer” is a transformer having an input voltage on the primary side lower than the output voltage on the secondary side. Typically, a step-up transformer is used to raise voltage to a level compatible with a utility’s transmission or distribution system voltage.

Transient: A change from the steady-state condition of voltage or current, or both. Transients can be caused by a lightning strike, a fault, or by switching operation, such as the opening of a disconnect switch, and may be readily transferred from one conductor to another by means of electrostatic or electromagnetic coupling (IEEE 100-1984).

Transmission Line: A line used for electric power transmission. A transmission line is distinguished from a distribution line by voltage level and by its function in the electric power system. Transmission lines are typically rated at 69 kV and above.

Transmission System: That part of Chugach’s electric power system that transmits power from Chugach’s generation facilities to, and between its substations at high voltage levels.

Trip Indication: A display or indication that a circuit breaker has tripped. This indication can be in the form of relay targets, annunciator alarms, sequence-of-events recorder logs, SCADA alarms, etc.

U

Undervoltage Protection: Upon loss or reduction of voltage, the protection device, which interrupts power to the main circuit and maintains the interruption.

Unintended Island: The creation of an island, usually following a loss of a portion of Chugach’s electric power system, without the approval of Chugach.

Uninterruptible Power Supply (UPS): A power conditioning and supply system that provides a continuous source of power to equipment (e.g., computer systems) during short-term power outages or surges.

Unsafe Operating Conditions: Conditions that, if left uncorrected, could result in harm to personnel, damage to equipment, loss of system integrity or operation outside pre-established parameters required by an interconnection agreement.

V

VAR (var): The unit of reactive power in an alternating current circuit equal to the square root of the difference between the squares of the apparent and the active powers. See Reactive Volt-Ampere and see Power, Reactive.

Volt: The practical unit of electromotive force, or potential difference. One volt will cause one ampere to flow when impressed across a one ohm resistor.

Volt-Ampere (VA): A unit of apparent power in an alternating current circuit equal to the product of volts and the total current which flows because of the voltage. In AC circuits with unity power factor, the volt-amperes and the watts are equal. In AC circuits at other than unity power factor, the volt-amperes equal the square root of watts squared plus reactive volt-amperes squared.

Glossary

Voltage Regulation: The control of generator terminal voltage to a predetermined value. This is accomplished using a voltage regulator that controls the amount of current flowing into the generator field winding, which in turn affects the output voltage of the generator.

W

Watt: The practical unit of active power which is defined as the rate at which energy is delivered to a circuit. It is the power expended when a current of one ampere flows through a resistance of one ohm. A watt represents a unit of real electric power as contrasted with a volt-ampere which represents a unit of apparent power.

Watthour (Wh): The practical unit of electric energy which is expended in one hour when the average power during the hour is one watt.

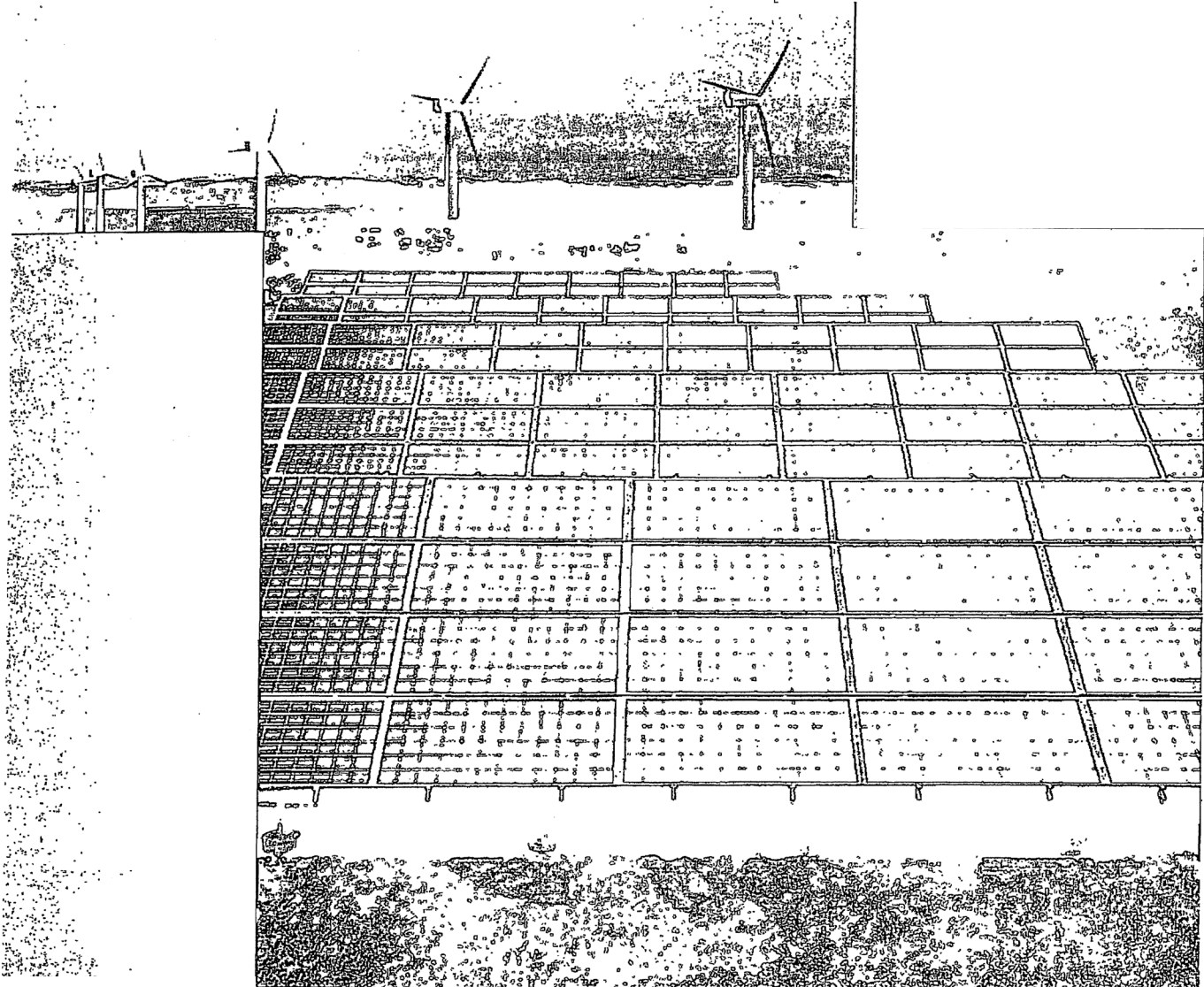
Watthour Meter: An electricity meter that measures and registers the integral, with respect to time, of the active power of the circuit in which it is connected. This power integral is the energy delivered to the circuit during the interval over which the integration extends, and the unit in which it is measured is usually the kilowatthour.

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Interconnection and Operating Requirements
For Non-Utility Generation Up to 5,000 kVA

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Effective: December 23, 2020

2010 Edition

RCA No. 121OriginalSheet No. 52Canceling

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Chugach Electric Association, Inc.

by the owner. If the owner desire underground distribution facilities he shall reimburse Chugach for the cost of clearing, trenching, backfill and conduit for the underground facilities.

As an alternative to the foregoing, a trailer court owner may elect to take electric service at a single delivery point under the appropriate general service rate schedule. If this election is made, the owner shall install, operate and maintain all electrical facilities on the load side of the point of delivery. The owner may not meter or bill separately the electricity furnished to individual tenants.

The above alternative method does not apply to trailer courts where construction was begun after December 31, 1982. For the purpose of this section, mobile home parks, for travel trailers with electric hook-ups for motor vehicles are not included.

8.8 Three-Phase Service.

Three-phase service will not be provided to a customer if the connected load is less than 5 horsepower unless three-phase service is immediately available on existing circuits.

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

Tariff Advice No.

Issued by:

Effective: **December 23, 2020**

Chugach Electric Association, Inc.

P.O. Box 196300 Anchorage, Alaska 99519-6300

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STATE OF ALASKA
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Chugach Electric Association, Inc.

FUEL AND PURCHASED POWER COST ADJUSTMENT
 (Continued)

<u>DATE</u>	<u>COPA</u>
August 15, 2016 – September 30, 2016	\$0.06204
October 1, 2016 – December 31, 2016	\$0.04860
January 1, 2017 – March 31, 2017	\$0.05871
April 1, 2017 – June 30, 2017	\$0.07666
July 1, 2017 – September 30, 2017	\$0.03279
October 1, 2017 – December 31, 2017	\$0.02800
January 1, 2018 – March 31, 2018	\$0.02456
April 1, 2018 – June 30, 2018	\$0.01024
July 1, 2018 – September 30, 2018	\$0.02076
October 1, 2018 – December 31, 2018	\$0.04213
January 1, 2019 – March 31, 2019	\$0.04773
April 1, 2019 – June 30, 2019	\$0.05002
July 1, 2019 – September 30, 2019	\$0.03655
October 1, 2019 – December 31, 2019	\$0.04079
January 1, 2020 – March 31, 2020	\$0.03429
April 1, 2020 – June 30, 2020	\$0.01706
July 1, 2020 – September 30, 2020	\$0.02204
October 1, 2020 – December 31, 2020	\$0.04017

Pursuant to U-18-102(51)/U-19-020(46)/U-19-021(46)

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